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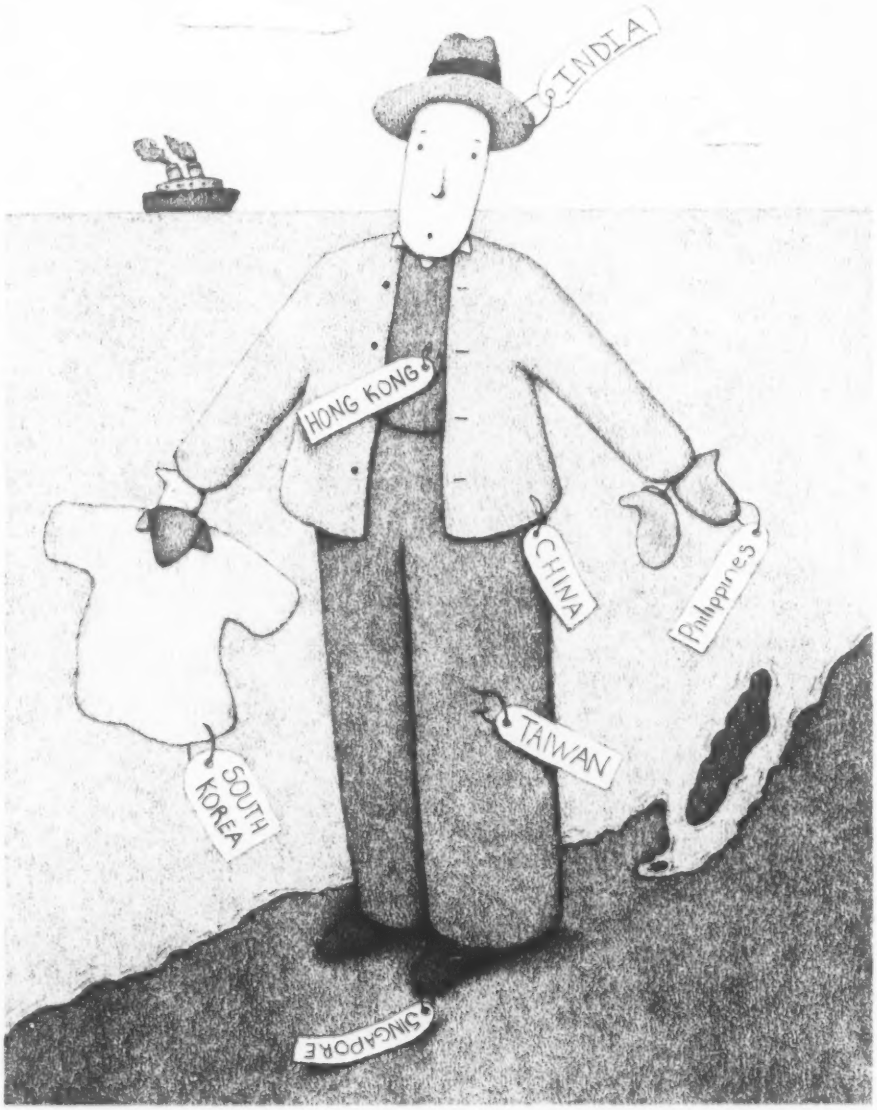

The Puget Sound's Sportswear Industry

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- ► Personal Income Indicators

Food Consumption: A Survey of Seattle and Kobe Residents

Educating the American Work Force

Commentary

Business Education in a Global Environment

As I begin my tenure as dean of the Schools of Business Administration, I'd like to share with *Pacific Northwest Executive* readers some of my observations on the topic of business education.

Ours is now a global business environment. With some justification, critics have pointed to the failure of American competitiveness in a number of key industries. While the picture is not nearly as bleak as the doomsayers tell us, change is clearly under way, and American management education must respond by assuming a leadership role.

I feel that the United States has not lost its competitive edge for lack of merger and acquisition experts, sales and marketing professionals, or number crunchers, but rather for our failure to train managers in how to manufacture a cost-effective, consistently high-quality product. Too many of our country's schools of business management are turning out people who choose staff positions, while consciously avoiding line jobs. Without denigrating the importance of staff jobs, we need to encourage tomorrow's leaders to accept the challenges and responsibilities that come with the management of the shop floor. For that to happen, business education needs an added emphasis on manufacturing management and logistics. To become more competitive internationally, we should focus on all of those incremental steps that increase productivity. What's more, we need to understand—through research and investigation—what the highly successful foreign firms are doing, how they're doing it, and why. And for that, we must concentrate on the international aspects of business.

I also believe that business schools should make the study of ethical behavior in business a key ingredient of every program. Ethical standards have both moral and practical value, and our educational institutions should be preparing students to behave instinctively in ways that are personally rewarding, socially useful, and morally appropriate.

Perhaps I'm old fashioned, but I also believe that students should have to work hard. Educators shouldn't pile on the work for work's sake, but we should present students with demanding intellectual challenges. Yes, students need to develop specific skills and a body of knowledge, but they also need experience in the process of making reasoned judgments under conditions of complexity and uncertainty. They need to develop a breadth of vision and a craving for knowledge, which is the best foundation for sound decision making. The managers of the future, I believe, are going to have to be Renaissance men and women who possess both breadth and depth, and the qualities of leadership and good citizenship.

When I arrived at the University of Washington Schools of Business Administration, I found a first-rate, dedicated faculty, a student body of remarkable quality, and a sensitive and supportive central administration. I plan to continue the innovations initiated by my predecessors, and part of this effort will be to involve the business community to an ever-greater extent in our programs and research projects. The strength of our efforts to educate and to serve can be greatly enhanced by the relationship we forge with the community.

In cooperation with the faculty, I plan to establish a number of study groups to look at the needs of our constituencies, to determine how we can best serve them, and to chart our future. Our constituencies are our students, our alumni, the state, and the nation. We also have a fifth constituency, the pursuit of knowledge, and we will take its needs into account, too, as we build and develop our programs in the coming years.

In closing, I'd like to share with you a statement from a Carnegie Foundation report titled *The Education of American Businessmen:* "The main goal of a business education should be the development of an individual with broad training in both the humanities and principles of business, capable of independent, imaginative, and constructive thought. A business education should also help develop in a student an inquiring, analytical, and searching mind and a code of ethics that includes honesty, integrity, and an uncompromising respect for the rights of others." This prescription is both my challenge and my goal as dean. Your suggestions, criticisms, and assistance in the pursuit of this effort will always be welcomed.

Robert S. Leventhal
Dean, School and Graduate School of Business Administration

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THE PUGET SOUND'S SPORTSWEAR INDUSTRY

"IT'S A CHESS GAME"

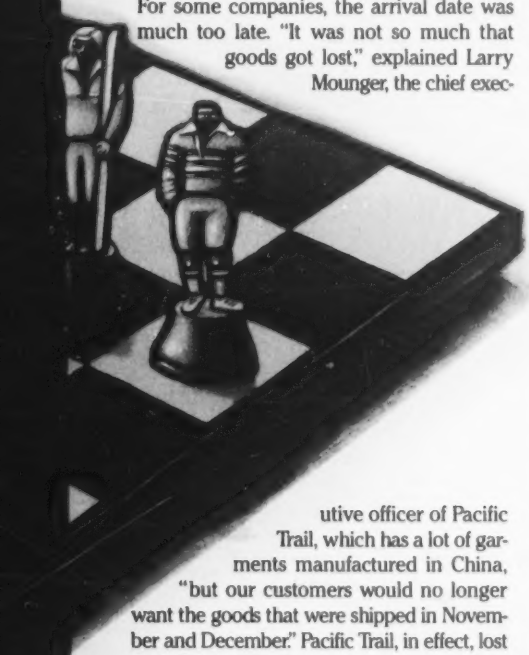
by Daniel Jack Chasan

When the Chinese government sent tanks into Tiananmen Square last summer, not everyone waiting anxiously for news from China had relatives there. Some had products, bought and paid for, that seemed likely to turn up late, if ever, in American ports. Among the anxious waiters were the executives of the Seattle garment firms that had come to rely heavily on factories in the People's Republic. They had reason to worry. The Chinese agency that issued government quota documents shut down for a month. Factory workers had to spend four hours a day in study sessions, and productivity fell. Factories with good quality control had to forget about quality and just get products out the door. The factory managers who had anticipated trouble shipped their products in May, creating a huge backlog at China's ports, and the stacked up containers of garments had to remain at the ports while the police searched them one by one, looking for students and other dissidents hiding inside.

Not everyone had trouble. Seattle's largest sportswear firm, Generra, which has been

doing business in China since the beginning of the 1980s, lost exactly one order out of thousands, said the company's chief executive officer, Steve Miska. Charles Yung, one of Generra's partners, is China's second-largest exporter, and his very thorough knowledge of the ropes may have helped. Whatever the reason, Miska said that there were anxious moments but, "we really didn't have any trouble."

Others were less fortunate. Some Seattle importers received telexes saying that their products were on the way, but not saying exactly what had been shipped, how much of it was coming, or when it would arrive. For some companies, the arrival date was much too late. "It was not so much that goods got lost," explained Larry Mounger, the chief executive officer of Pacific Trail, which has a lot of garments manufactured in China, "but our customers would no longer want the goods that were shipped in November and December." Pacific Trail, in effect, lost 50,000 jackets.



Are Pacific Trail and other Seattle-area firms considering alternate sources of supply? Of course, but it's not that simple. Recreational Equipment Incorporated's vice president for merchandising Bob Stadshaug said, for example, that REI obtains all its down garments and bags from China. Buyers can purchase down in the United States and other countries, but China has so much down of such high quality that all other suppliers have become peripheral. "The world supply of down is coming out of China," Stadshaug said. "And they're not exporting the raw product."

Alternatives aren't that easy to find. "You can go to the Philippines," Mounger said, "but they don't have the quota available. Indonesia's quota is too small. Bangladesh floods."

The Seattle-area garment industry isn't about to abandon Asia or swear off all the countries that have the potential for political disruption. Mounger explained that China was not the only nation in which his firm does business that has gone through political difficulties in the past few years. Sri Lanka, for example, may have gotten fewer headlines in the U.S. press, but political turmoil has affected business there. "We had big problems in Sri Lanka this year," he admitted.

Made in Asia

Seattle has become the center of the nation's men's sportswear industry. According to one estimate, 75 percent of the men's sportshirts sold in the United States are designed by Puget Sound firms. Generra, Seattle Pacific Industries (the makers of Union Bay sportswear), and a host of smaller companies represent a nearly $1 billion a year industry. Firms like REI and Eddie Bauer also make this the center for outdoor wear.

Because most of the garments designed and distributed here are manufactured abroad, apparel and textile imports through the Port of Seattle are worth $2 billion a year. South Korea, Hong Kong, Taiwan, and China, in that order, are the leading countries of origin, and Seattle is the nation's third largest apparel and textile port, trailing only the Southern California ports of Long Beach and Los Angeles.

What is a major sportswear industry doing in the Puget Sound region? A lot of people wonder. Duncan Berry, who designs young men's sportswear for a brand-new Tacoma-based firm named Eight Ball, says that "when I travel to New York or Los Angeles, people are always asking me, 'These guys are really from New York, right, and they just work there?' They have trouble believing that good design really comes from the Northwest. But it does." Berry suggests that a casual look is in, and this place is obviously a lot more casual than New York or Los Angeles. Six years ago, Steve Miska told the *Seattle Times* that "in Seattle, we are allowed to do it better because we have fewer outside influences, and we can concentrate on what we do well." Certainly, the cost of doing business is lower in Seattle or Tacoma than it is in New York or the big cities of California. International News chief executive officer Mike Alesko explained, "If somebody has an idea here in Seattle, at least your [first thought] is not, 'I'm going to need the Wells Fargo Bank to support this thing.' "

Price, Attitude, and Quality

Any description of the Seattle sportswear industry has to acknowledge the fact that in the beginning, there was Britannia. That company, originally based in Seattle—it moved to California, went bankrupt, came back, was bought, and moved again—started the designer jeans boom in the 1970s. A number of Britannia executives learned the business, made a good deal of money, and left to start their own firms. Seattle was a nice place to live, it was close to Asia, and those ex-Britannia executives knew about producing garments in the Far East.

The initial lure of the Far East was, of course, price. Asian labor would make textiles and finished garments for less money than American labor would. When the dollar grew strong in the early 1980s, the price difference increased, and American manufacturers flocked overseas.

"It would be our preference to make all our products in the United States," Mounger told the *Seattle Times* in 1984, "but it's a matter of reality." He explained that "customers require a high amount of detail, which means a higher labor increment. The higher that is, the better the chance you will have it made in the Far East."

But local sportswear makers now say price isn't the only reason—or even the main reason—for having garments manufactured abroad. "The American industry has a 'Can't-Do' attitude," said Joe Lee, Eight Ball's director, who has worked for Britannia and other firms. "Overseas, it's 'Can-Do.' " "The flexibility has almost become more important than the price," Miska stated, "because it enables us to move with the market. We can move at a whim." If you want something unusual, local executives say, or if you want a very limited number of garments, or something in a hurry, an American manufacturer may very well tell you to get lost.

"The [American] textile industry has generally pursued a strategy of long-run production of standard goods for the mass market," observed *Made in America: Regaining the Productive Edge*, a recent MIT study. "To keep production costs low, firms have pushed for higher and higher productivity by installing faster looms and using synthetic fibers or inexpensive, high-production yarns. A narrow focus on keeping wages low and

fighting unionization has also been central to competitive strategy. Successful German and Italian firms made the transition away from mass production to a strategy based on identifying a segment of the market, a niche, in which they could compete on the basis of quality, style, originality or prestige, and not solely on the basis of cost. American firms have been slow to make the transition."

(REI, which sells outdoor wear, not sportswear, joined the stampede overseas in the mid-1980s, but it has now brought the majority of its manufacturing back to the United States. "Price isn't everything in our game," Bob Shadshaug explained. Outdoor clothing is expected to last forever, so customers are less sensitive to the price. Another reason is flexibility. Overseas, he said, REI must place a large order and pay for it far in advance. In the United States, the company can order smaller quantities with shorter lead times and avoid the prospect of unsold goods.)

Actually, sportswear companies haven't entirely sworn off U.S. manufacturers. Genera receives perhaps 10 percent of its garments—in the form of knit shirts and sweaters—from American contractors. Woven shirts and pants, which are more labor intensive, tend to be too costly when they're are made here. Even large domestic manufacturers have started to move offshore to produce woven goods, Miska said.

Another reason for the offshore exodus is that often it's just plain easier to do business abroad. Here a company may have to deal with four separate suppliers if it wants to buy, say, knit goods. If something goes wrong, no one is responsible. Overseas, the company gets a finished product from one source.

And then there is quality. Duncan Berry looked at a sample, a white T-shirt made to precise specifications by a firm in South Korea and marveled at the quality. The shirt, he announced, "looks like it was sewed by God." Just as "Made in Japan," which once implied cheap but shoddy, has come to stand for quality, so "Made in Hong Kong" and "Made in South Korea" have come to stand for a lot more than a cheap shirt. "The best textiles, best trimmings, and best expertise in the world right now are available in Asia," Mounger said.

"It's Got a Personality."

Although Asia is and for the foreseeable future is likely to remain the principal source for overseas manufacturing, it not the only choice. Generra is having trousers made in

In Hong Kong, quota is openly bought and sold in a formal market; in other countries, the government allocates quota.

Brazil—where, Miska said, "the inflation rate right now makes it a little difficult"—and has started using other Latin American sources as well. Eight Ball is producing some garments in Syria—and hoping that American consumers don't object. International News gets virtually all its knits from Portugal. That arrangement "wasn't so good when the escudo was 105 to the dollar," Alesko explained, "but now that the escudo is 160 to the dollar," the costs are more favorable.

Within Asia, certain countries specialize in particular garments or fibers. For sportswear, Hong Kong is the leading player, although there's also a lot of production in South Korea and Taiwan. For outerwear, China, South Korea, and Taiwan are the big producers. For knits, it's Hong Kong or Taiwan. For sweaters, you can go to Hong Kong, South Korea, or Thailand, but definitely not India. For woven cloth, India and Malaysia are fine.

As labor grows more scarce and more expensive in Korea, Hong Kong, and Taiwan, Seattle garment firms have started looking at India, Pakistan, Sri Lanka, Bangladesh, and other less developed countries. Some of the factories in those countries—like some of the new factories in the United States—have been started with money from Hong Kong. Apprehensive about what will happen when China takes over the colony in 1997, Hong Kong garment makers have been investing overseas. Miska noted that most of the factories that Generra does business with in Indonesia and Malaysia have Hong Kong partners.

Some Seattle firms have been looking to those nations for years. Mike Alesko said that International News has tried to avoid the big four of Hong Kong, South Korea, China and Taiwan for reasons unrelated to labor costs. "If everybody [has clothing manufactured] in the same place, it all looks the same," he said. "The Third World gives you an element you're not sure of from one time to the next. The edges are a little bit rougher, but it's got a personality." International News now uses India, Nepal, Bangladesh, and Sri Lanka, and Alesko himself has been buying wovens from India for years.

Having experience abroad doesn't necessarily mean avoiding problems, however. "We know that something's going to break just about every hour of every day," Alesko admitted, "but we know how to go in and fix it. That doesn't mean Indian people aren't sensible—they're knowledgeable. But they don't have all the available technology, so they have to go about things in a different way."

Other countries present other problems. In Bangladesh, for example, a company can get garments cut and sewn, but must import fabrics from somewhere else. Many of the less developed countries haven't yet developed the industrial infrastructures for producing garments. "You have to pay a price to go into those new countries," Larry Mounger stated. "You literally have to train the people, and you have to ask yourself, 'Where am I going to get poly fills? Where am I going to get zippers?' There's a good reason why you do business with Hong Kong, South Korea, Taiwan, and Singapore."

Arguments and Counterarguments

There's also a good reason why Seattle sportswear firms and their Congressional representatives have fought to keep Asian exports from being restricted or rolled back. In 1985, when Congressmen from Southern textile-manufacturing states tried to tighten U.S. textile quotas radically, then-Senator Dan Evans led the opposition. The whole Washington delegation jumped into the fray. Generra, Pacific Trail, and the Port of Seattle led the lobbying against the bill. "It isn't just Washington against the rest of the nation," said Generra's chief operating officer Mark Sobol, "but it sure looked like it."

At first, things looked grim for Washington sportswear firms. Georgia's Representative Ed Jenkins and his Southern colleagues had caught the industry napping. The Jenkins bill—officially titled the Textile and Apparel Enforcement Act—sought to roll back clothing imports from Asian countries to their 1981 levels and to limit increases thereafter to 6 percent a year. It would have cut imports from Hong Kong by 12.7 percent, South Korea 33.6 percent, Taiwan 45.4 percent,

and China by 57.3 percent. The Seattle sportswear industry would have shrunk by about one-third.

(There was, not surprisingly, an element of racism in the proposed bill. Textile imports from European countries wouldn't be touched —and not only because the Asian apparel and textile industries were the ones growing rapidly, but also because of a feeling that one simply couldn't treat European countries that way.)

The argument in favor of the bill was jobs: imports had already cost the United States 300,000 fiber, textile, and apparel jobs since 1980 (a less partisan figure was 168,000). Without legislation, the proponents argued, the American textile industry would be dead by 1992. The counterargument was price: the bill would increase U.S. clothing prices by anywhere from 6 percent to 40 percent. The Reagan administration, which opposed the measure, said that each job saved would cost American consumers $100,000. Ultimately, the bill passed, but Reagan vetoed it, and the Washington delegation and its allies had lined up enough votes to keep the veto from being overridden.

There was a certain irony in the Southern Congressmen's position. The U.S. garment industry has always employed the latest group of immigrants, who offer the cheapest labor. The South had won a large part of the industry from the Northeast because it could offer cheaper labor, which was often nonunion. Now, the industry was looking for still cheaper labor and going to foreign countries. "The history of the American textile industry is essentially a search for low wages," the *Made in America* study reported. "The industry moved first from New England to the Southeast and then went offshore."

The fight over the textile bill created a long period of anxiety for local sportswear executives, and although the measure didn't become law, they found that the opposition has not given up. "What they couldn't accomplish by a legislative act, they accomplished administratively, through the customs service," Mounger said. Delays increased, technical questions required months to answer, and samples that would normally have gotten through customs in 72 hours took up to two weeks. In subsequent bilateral negotiations, the growth rates for imports from Hong Kong, South Korea, and Taiwan fell considerably.

The American textile industry has been making money, and the chances are slight that anyone will introduce sweeping new

Boeing 747s are often leased at the end of the season to rush the last garments through customs before quotas close.

reforms. But a renegotiation of the international Multi Fiber Arrangement is coming up, as are negotiations with all the apparel and textile exporting nations. The Seattle industry is still exercising a certain amount of political vigilance. "We're always wary," Mounger explained, "and we're always on guard."

Gambling on Quota

Legislation aside, sportswear executives must continue to deal with the intricacies of an inherently frustrating system. Eight Ball's Joe Lee pointed to a turtleneck, folded up inside a plastic bag, that was manufactured in South Korea. A label in the collar, not visible until the garment is unwrapped, says clearly where the turtleneck was made. Another large, legible label on one side of the package also says "Made in South Korea." But a label on the other side of the package includes the company's Tacoma address, and for that reason, customs decided that the bag might mislead the public. It wouldn't let the turtlenecks in the country unless their point of origin was made even clearer. "I had to go and stick 66,000 labels on that said 'Made in South Korea,' " Lee said. "Sixty-six thousand labels!"

Large firms employ people just to handle customs problems, but the smaller firms are on their own. Large firms or small, all must wrestle with the quotas, which dictate how many garments of a specific type from a specific country will be allowed in the United States each year. The bottom line, Mounger said, is "you have to go where there's quota. The earlier players in the game have a lot of quota. The established countries now have the quota, but they don't have the prices." The less developed countries, in comparison, can offer lower prices but they have only limited quota.

Were it not for the quota system, everyone could just go to China, which is the only major Asian apparel-manufacturing country in which labor costs haven't grown significantly. But the quota is limited, so Northwest sportswear firms are on a continual quota hunt. Occasionally, there are loopholes. Because there was no quota on ramie, a cotton substitute, China started producing large numbers of ramie garments. Now, there's a quota on ramie too.

In Hong Kong, quota is openly bought and sold in a formal market; in other countries, the government allocates quota, which is sometimes traded unofficially. The system can force a sportswear firm to gamble: last summer, a Seattle-area company received word from South Korea that it could get 18,000 garments of a particular kind, but it had to negotiate the quota for them in August—weeks before the fall shows could indicate the extent of the market.

Generra projects its needs for quota six months in advance, buys it in Hong Kong on either a temporary or permanent basis, and then negotiates with other governments. The firm also monitors the U.S. Customs Service's import number daily. If a quota in one country seems likely to fill early, Generra will arrange to have work done somewhere else.

As fall approaches, sportswear executives start worrying about receiving the garments they've ordered before the quotas close for the year. "It's a chess game," Mike Alesko said. "You've got moves you make."

When the quotas get close to the cutoff point, a foreign supplier may start charging not only for the garments, but for the quota too. The American buyer has little choice, for anything that doesn't slip in under the quota will sit in customs until the next year. "If you see that's going to happen," Lee stated, "you hire an airplane for $86,000." Boeing 747s are often leased at the end of the season to rush the last garments through customs before quotas close. Sometimes they get here in time, sometimes they don't.

Everyone who deals with quotas would rather see a saner system. Complete free trade in apparel and textiles is out of the question; if that ever happened, the United States would be inundated by imports. Still, Larry Mounger said, "we'd love to see the quota system scrapped." He's not holding his breath.

Daniel Jack Chasan is the author of The Water Link *and* The Fall of the House of WPPSS.

REGION WATCH

Economic Developments in the Pacific Northwest

As we enter the 1990s, most economists are anticipating that the national economy, which is entering its eighth year of expansion, will continue to grow at a slow to moderate pace. How long will the expansion last? And what are the risks of a recession during the coming year? Michael Boskin, chairman of the President's Council of Economic Advisors stated at a recent National Association of Business Economists meeting that expansions do not die of old age. A recession, he said, is induced by either a supply shock, policy errors, or a significant change in consumer and business expectations.

Our panel of forecasters asserts that the economy is probably the most vulnerable to a recession during the first three quarters of 1990. Most of the responsibility for steering the economy falls on the Federal Reserve Bank, which must sustain economic growth while controlling persistent inflation. But economists, policy officials, and the general public have recently questioned the reliability of the data used to set economic policy. Early in 1989, for instance, the bank adopted an accommodating policy because the available data showed that the economy was slowing, when it was, in fact, doing rather well. Unreliable data could lead the bank to make inappropriate policy decisions that could plunge the economy into a recession.

The Federal Reserve Bank's independent role in setting monetary policy could also be affected by direct, and perhaps intrusive, Congressional oversight. A recent study by Harvard economist Alberto Alesina shows that a there is a strong inverse relationship between a central bank's degree of independence and a country's inflation rate. Between 1973 and 1986, the most independent central banks—West Germany's Bundesbank, the Bank of Japan, and the Federal Reserve Bank—were found in countries with the lowest inflation rates.

The latest gross national product estimates for the third quarter show that the economy is growing at a modest annual rate of 2.5 percent, driven largely by growth in consumer spending. Consumer spending growth, however, cannot be sustained, especially when consumers are buying durable goods. Signs of distress are appearing: sluggish growth in business investment, weakness in the manufacturing sector, a build-up in nonfarm inventories, a decline in housing construction, and a substantial drop in the net exports sector. The economy's recent trade performance, the poorest since early 1983, is due to the rise in the exchange-rate value of the dollar, which makes exports more expensive relative to imports. The foreign trade sector has been a major contributor to economic growth nationally and in the Pacific Northwest during the last several years.

According to the members of our forecast panel, the longest peacetime expansion in U.S. history is expected to continue. The consensus of the panel is that the national economy will slow in the coming year, with a modest improvement in real output growth in 1991. Inflation will remain within the 4.3 to 4.5 percent range (Table 1).

Projections for nominal personal income show a decline in the growth rate from 1989 to 1990 in all three states. Modest improvements in 1991 personal income are forecast for Washington and Oregon, with a continued decline for Idaho. On employment variables, growth is also expected to slow during the next two years, especially in Oregon, where timber supply constrains will have a serious impact on the forest products sector. Nonetheless, these values will continue to be positive, consistent with the panel's expectation that no recession is likely during 1990.

During the last two years, employment growth in the Pacific Northwest has exceeded the national average in most major sectors. Since the 1980-82 recession, the Pacific Northwest has led the nation in state manufacturing employment growth rates. Idaho, which was in an economic doldrum for most of the 1980s, saw nonfarm employment increase 4.6 percent during 1988. Idaho's total nonagricultural employment level of nearly 350,000 in 1988 exceeded its previous employment watermark, which was recorded nearly a decade earlier. Idaho's employment rebound during the last two years of the 1980s was driven largely by a tremendous surge in manufacturing employment, primarily in the state's small, but rapidly expanding, high-technology sector. Although the Idaho members of our forecast panel predict that employment growth in the next few years will taper off, the state, they say, will lead the Pacific Northwest in growth rates. During the last two years, Washington and Oregon have been among the national leaders in total state employment growth rates. Buoyed by significant increases in the manufacturing and construction sectors, these

Impressive employment growth

Table 1: Panel Forecasts
median annual percent changes

	REAL GROSS NATIONAL PRODUCT	IMPLICIT PRICE DEFLATOR
1988 actual	4.4	3.3
1989	2.8	4.5
1990	1.8	4.3
1991	2.8	4.5

	NOMINAL PERSONAL INCOME	NON-AGRICULTURAL EMPLOYMENT	MANUFACTURING EMPLOYMENT
Washington			
1988 actual	7.8	4.5	6.3
1989	9.6	4.8	5.6
1990	7.2	2.4	2.7
1991	7.4	2.6	2.4
Oregon			
1988 actual	8.7	4.8	3.9
1989	9.2	3.5	1.8
1990	6.7	1.7	0.0
1991	7.1	2.3	1.6
Idaho			
1988 actual	7.7	4.6	7.4
1989	9.5	4.5	7.5
1990	8.0	4.0	5.0
1991	7.1	3.5	4.0

states also experienced their fastest growth since the late 1970s.

Although recent personal income growth in the Pacific Northwest has exceeded the national average, the region generally lagged behind the rest of the nation in personal income growth during the 1980s. The reasons for this less than scintillating personal income performance include the severity of the 1980-82 recession, which hit the Pacific Northwest harder than the nation as a whole, the ensuing farm crisis, which adversely affected agriculturally intensive states such as Idaho, changes in the region's industrial mix, which caused shifts in employment, and stagnant real wage growth in the region's dominant industries. Our panel anticipates that personal income growth will mimic that of the nation during the early 1990s.

The impact of Boeing

The recent labor dispute at the Boeing Company provides us with yet another opportunity to look at the importance of the aerospace giant in the Washington economy. Has the state's dependence on aerospace and Boeing lessened in recent years?

In 1968, at the height of the previous Boeing boom, aerospace employment in Washington reached 104,500—7.3 percent of all jobs in the state. As of late 1989, with Boeing's employment totaling 115,700 workers, aerospace's share of total state employment dropped to 5.7 percent. This decrease in relative employment share has prompted some observers to conclude that Washington business activity is now much less dependent on the aerospace giant. The fact of the matter is that the state economy at the close of 1989 is no less tied to the health of the Boeing Company than it was 20 years ago. Although there has been a gradual long-term decline in aerospace's share of total state employment, the industry's share of output and labor earnings is higher today than it was in 1963.

Given the number of indirect jobs supported by Boeing, it's apparent that the company's impact on the state economy has not diminished, but has actually increased. Using data from the Washington Projection and Simulation Model (based in part on the Washington Input-Output Model), the aerospace employment multiplier in 1963 was 3.2, meaning that each aerospace worker, largely through purchases of local goods and services, supported slightly more than two other jobs in the economy. The total impact of the 64,200 aerospace employees that year amounted to 205,400 jobs, or about one out of every six jobs in Washington. Today, because of substantial gains in labor productivity and real wage earnings, the employment multiplier stands at 4.2. As a result, 115,700 aerospace workers currently support another 370,200 jobs, which is about one-fifth of the state's work force.

The Boeing Company was the single most significant contributor to the state's recovery and expansion during the 1980s. Since 1983, the aerospace industry has added more than 47,000 new jobs, which account for more than 12 percent of the state's employment growth and more than 26 percent of the state's growth in total real wages. The industry was responsible for 60 percent of the state's manufacturing expansion and nearly 90 percent of manufacturing's growth in real wages. Without the expansion in aerospace, the growth rate for Washington wouldn't be much different than the national average.

The U.S. Department of Commerce's recently published *1987 Census of Retail Trade* offers us an opportunity to look at past retail performance for the three states. Such information is generally difficult to come by, especially for Oregon, which has no retail sales tax.

Retail performance

As a whole, the Pacific Northwest's 47,211 retail stores reported sales totaling $49 billion in 1987. In comparison with the 1982 census, this represents a real annual growth rate of 3.7 percent. Washington led the region with a rate of 4.2 percent, followed by Oregon at 3.7 percent and Idaho at 1.4 percent. Idaho's poor retail performance is due to the state's stagnant economy and level of outmigration during the 1980s (Table 2).

The region's rural areas in particular demonstrated a sluggish performance in retail sales during the period, with a real annual growth rate of 1.4 percent, compared with 4.6 percent for metropolitan areas. By and large, rural areas that suffer from net outmigration, stagnant growth in resource-dependent industries, and low per capita income, are losing customers to their urban neighbors, which can provide a greater selection of retail goods and services.

This gradual erosion in rural retail sales is further underscored by changing pull factors, a measure of specialization that compares total sales with per capita income. A pull factor of less than 1, for example, suggests that an area is not capturing all the retail sales expenditures of its residents. The 1987 data indicate that rural counties in the region on average have pull factors of less than 1, and many of these counties have seen a decline in real retail sales. Some rural counties—such as Hood River in Oregon, Kootenai in Idaho, and Chelan in Washington—have recorded pull factor increases, due in large part to incoming tourism dollars and the counties' accessibility from interstate highways.

Table 2: Retail Trade Performance in the Pacific Northwest, 1987 and 1982
In billions 1982 $

	1987		1982		PERCENT CHANGE, 1982–87	
	Total Sales	Pull Factor	Total Sales	Pull Factor	Real Retail Sales	Pull Factor
Washington						
Metropolitan Counties	29.81	1.02	18.77	1.06	24.09	−3.32
Nonmetropolitan Counties	3.41	0.87	3.23	0.98	5.36	−11.20
Oregon						
Metropolitan Counties	10.91	1.03	8.99	1.00	21.33	2.47
Nonmetropolitan Counties	4.04	0.93	3.64	0.99	10.97	−6.12
Idaho						
Metropolitan Counties	1.05	1.00	0.89	0.97	18.19	2.98
Nonmetropolitan Counties	3.29	1.00	3.17	1.01	3.95	−0.82

SOURCES: U.S. Department of Commerce, *1987 Census of Retail Trade* and *1982 Census of Retail Trade* for Washington, Oregon, and Idaho

Worth Reading

Washington Works Worldwide: Positioning Ourselves to Compete in the New Global Economy
Washington State Economic Development Board, Department of Trade and Economic Development, AX-13, Olympia, WA 98504-0613, November 1988, 72 pages, no charge.

Oregon Shines: An Economic Strategy for the Pacific Century
Oregon Economic Development Department, Salem, OR 97310, May 1989, 32 pages, no charge.

Idaho Works: An Economic Development Agenda for the State of Idaho
Idaho Department of Commerce, Boise, ID 83720, November 1987, 48 pages, no charge.

The decade of the 1980s has been a watershed for state economic development planning in the Pacific Northwest. Washington, Oregon, and Idaho no longer wish to respond to changing economic circumstances; all three states are taking an active role in determining the course of their economic future. While their ability to influence economic prospects has limitations, the Northwest states, in acknowledgment of the back-to-back recessions during the early 1980s and the gradual lessening of the federal government's involvement in state and substate growth, have prepared their own strategic economic development planning documents. Each report is long-term in scope and customized to reflect each state's unique socioeconomic characteristics.

The Pacific Northwest states are trying, in essence, to better understand their economic performance and to develop programs to address perceived weaknesses and to capitalize on obvious strengths. Washington and Oregon adopted approaches that incorporate aspects of private-sector strategic planning and developed goals and programmatic efforts that draw on the public- and private-sector support. Idaho, in contrast, has relied on a more traditional state-sponsored approach to analysis, goal setting, and action-oriented programs. Although the federal government has a strong economic presence in the region, none of these plans recognizes the government's importance in forging a new partnership.

The Washington State Economic Development Board, drawing on the experience of individuals from the public and private sectors, devoted 36 months and numerous community meetings to the development of a composite economic vision of the state's future. *Washington Works Worldwide* asserts that the state stands at a critical juncture. The new global-economy era demands a state business climate that enhances the competitiveness of its businesses and work force. The report recommends that Washington's future economic development policies and programs focus on creating a flexible and highly educated work force, reforming the regulatory and tax structure businesses face, improving local capacity and basic infrastructure, and maintaining the state's high quality of life. The report also found promise in technology transfer, innovative entrepreneurship, and product development. In comparison with the other two state reports, it's not clear how Washington's plan will be implemented; the Economic Development Board ceased to exist in January 1989.

Oregon's planning effort was launched in June 1988 to address the state's need for competitive, long-term, managed growth in the expanding global economy. As in Washington, leaders from the private and public sectors were charged with the task of examining and recommending how Oregon could reshape its economic future. *Oregon Shines* endorses a number of initiatives deemed critical to the state, including investing in the state's work force and infrastructure, maintaining its high quality of life, developing an international orientation, and containing the costs of doing business. In addition, the report examined the state's competitiveness as a location for specific industries and small businesses. Advisory groups from emerging industries, such as high-technology, computer software, biotechnology, and plastics, as well as from the traditional mainstays, agriculture and forest products, examined policy issues that would enhance the state's competitive advantage.

Idaho Works is an action-based initiative commissioned by the state's Department of Commerce. Drawing on the expertise of a multitude of leaders and economic development professionals in the state, the plan recognizes the critical need for Idaho to diversify its economy through the recruitment of new business. To achieve success, the plan proposes steps to enhance Idaho's attractiveness, promote awareness, and increase state and local partnerships. Although there is a bias toward out-of-state recruitment, the plan stresses the benefits inherent in assisting the expansion of existing businesses, especially in creating value-added opportunities.

These plans contain three basic economic development themes: recruiting new firms, maintaining existing firms, and fostering entrepreneurship. Washington's and Oregon's policies recommend a movement away from limited industrial recruitment programs and toward an array of programs that are designed to be more flexible in dealing with particular circumstances. All three states are placing more attention on encouraging indigenous companies and fostering the growth of entrepreneurial activities. The states are also emphasizing the application of technological advancements to existing traditional industries to enhance their competitiveness.

Washington's and Oregon's economic development plans also incorporate international trade in the new global economy. The focus is on both export promotion and reverse investment, and the states envision themselves playing a role similar to that of an export trading company.

The plans cite a number of tools available to state governments to pursue economic development objectives, to stimulate the economy, and to lessen external business costs. Traditional instruments include taxes, fiscal incentives, regulations, education, and job training. In addition, these plans suggest such innovative programs as financial development mechanisms to fill the "capital gap" for entrepreneurs, industries, and communities.

In the future, more emphasis will be placed on the cost-effectiveness of programs and improved coordination among various institutions to achieve the desired results. Programs and institutions will be more flexible and responsive to changes in the private sector as it operates within a global economy.

The states in the Pacific Northwest cannot alter the many forces—such as national monetary and fiscal policies and foreign competition—that affect them. They can, however, take advantage of the opportunities that arise.

Computer Software: An Infant Industry Becomes a Regional Leader

The personal computer, a relative curiosity in the late 1970s, is now found on the majority of offices desks and is increasingly common at home and at school. The number of personal computers now in use totals 40 million, and the rapid growth in computer acculturation—and, more recently, the appearance of workstations—has focused increasing attention on the software industry.

Software has been characterized as an infant industry—one without large market shares or clearly defined distribution channels. But if the industry is an infant, it's a large one, and growing larger at an extraordinary rate. From less than $1 billion in sales in the late 1970s to 1989's anticipated total of $42 billion, the software industry has become one of the most promising of today's high-technology industries. Software will, in fact, soon surpass the computer hardware industry in sales, and the industry shows every sign of playing a pivotal role as the national economy moves into the technological and informational age.

The software industry is as distinct as it is young. Most software companies sell large quantities of standard products, yet they have no special raw material requirements. Software firms rely heavily on human resources, yet they employ relatively few people, given the amount of revenue they generate.

The meteoric rise in software sales and employment has convinced the economic development directors of several states that the industry represents a promising opportunity. In the three-state Pacific Northwest region, employment in software has increased tenfold since 1980 and now totals more than 10,000. Although small in comparison to other industries, the software sector has created jobs more rapidly than any other sector in the region and more rapidly than the national software industry. A number of regional firms—including Microsoft, Aldus, Central Point Software, Traveling Software, and Mentor Graphics—are now acknowledged leaders in software development.

Software: The Brains Behind the Hardware

In the broad sense, software is defined as those programs or instructions that modify or run computer hardware and extend the computer's function beyond actual computing. The "brains" behind the computer, software is the language and logic that enable computers to run their tasks.

A more detailed definition of software is complicated for a number of reasons. First, because software is classified by the federal government as a business services industry, the sector has suffered along with other service industries in terms of inadequate collection and reporting statistics.

Second, firms that primarily produce other goods and services are the ones that have developed new software. As a result, tracking software's primary industrial classifications captures only a portion of the industry's contribution to the overall economy. In *Datamation*'s annual survey of the computer and software industries, 11 of the top 15 firms, ranked in terms of worldwide software sales for 1988, are primarily classified as computer manufacturing firms. IBM, the world's leading computer manufacturer, also happens to be the world's largest software-producing firm ($7.9 billion in sales in 1988). Three of the largest software development houses in the Northwest—Boeing Computer Services, Mentor Graphics, and Weyerhaeuser Information Services—are classified under aircraft, electronics, and forest products, respectively.

Third, microcomputer-based software began as a cottage industry and a significant number of these vendors are home-based businesses. An estimated 20,000 software producers nationwide work part-time out of their homes or at school or on company time, yet very little is known about them.

Finally, there is no universally accepted system for classifying or tracking the vast array of software products. Software serves virtually all industries and covers a variety of markets and end-uses. More than 80,000 different software products have already been introduced in the United States, and manufacturers release 10,000 new products each year.

We can examine software from a number of perspectives: the type of hardware on which software operates (mainframes, minicomputers, or microcomputers), the type of product or service sold (prepackaged software, custom programming, or integrated systems design), and type of product use (system software and applications programs). Traditionally, mainframes and minicomputers have handled more complex tasks than personal computers, but the evolution of microprocessor technology is blurring the distinction among these groups.

The software industry can be categorized by the businesses that produce prepackaged software, those that offer custom computer programming services, and firms that provide integrated systems design and analysis. Prepackaged software, the dominant industry segment, accounts for 70 percent of the 1989 worldwide revenues of U.S. producers. Prepackaged software developers produce a finished, standardized product, which makes large-scale exportation to national and international markets feasible.

Individual customers usually dictate the specific needs and equipment configurations of custom software and computer integrated systems design. The federal government, for example, is a major buyer of custom software because its large and complex computer systems often require unique security restrictions and extensive documentation. Integrated systems designers generally modify software programs, then bundle them with purchased hardware. Both custom programmers and integrated system designers provide user training and ongoing technical support services.

Software, particularly the prepackaged segment of the industry, consists of system software and applications programs. System software controls the computer's component parts and provides the language that is used to write other programs. Applications programs provide us with general programs for word processing, spreadsheets, and database management, as well as purpose-specific software designed for applications in man-

ufacturing, government, finance and insurance, communications, and a host of smaller markets. Software applications in manufacturing are particularly important to the Northwest; the agriculture and food processing, forest products, electronics, instruments, and aerospace industries rely on software innovations to enhance their productivity and maintain their competitiveness.

The National Industry

Although computers have been around since the 1950s, the genesis of the software industry did not occur until the late 1960s. That's when the U.S. Department of Justice required IBM to "unbundle" its software from its hardware. Computer manufacturers, pressed to meet their customers' burgeoning software needs, quickly recognized the sales value of independently developed software. At the same time, too, the microprocessor—the "computer on a chip"—was invented, spawning the development of less expensive, more powerful, and smaller computer systems during the 1970s. With the commercial introduction of personal computers, software applications once reserved for mainframes and minicomputers became readily available for these smaller and increasingly popular machines. Subsequent breakthroughs in microprocessor technology during the 1980s furthered the trend toward downsizing. One Palo Alto executive stated that the industry is now "at the threshold where low-cost microprocessors actually outstrip multi-million dollar mainframes in absolute performance."

By the late 1970s, the computer industry had seen significant price reductions, performance enhancements, standardized operating systems and higher level languages, and the emergence and wide adoption of the personal microcomputer. Those factors provided the software industry with a ready market. With a rapidly growing base of computer systems and a ballooning demand for software, employment growth within the software industry has averaged between 10 and 25 percent annually. The industry's work force grew from less than 85,000 in 1980 to more than 345,000 in 1989.

Even during the economic downturns of the late 1970s and early 1980s, the software industry experienced substantial revenue and employment increases, with average annual growth rates between 20 and 40 percent. In fact, estimates of aggregate revenue for the 1963-1988 period indicate that more than 90 percent of the software industry's revenue growth has taken place since the late 1970s.

Software in the Pacific Northwest

The typical software firm in the Pacific Northwest is homegrown (its founder-entrepreneur previously worked for a regional software firm before starting the company), has 12 employees with an average annual wage of $32,000, takes in $1.2 million in annual sales, has been in operation for less than five years, and is located in a major urban area. Although a few corporations dominate the employment picture, the vast majority of Northwest firms have less than five employees. Software firms are labor intensive, and a significant portion of their manpower is devoted to research and development.

In 1988 more than 800 software businesses employed 10,130 people in Washington, Oregon, and Idaho. Both Washington and Oregon—according to a simple measure of industry specialization—focus on software production; that is, the industry's share of total state employment is higher than its share of total national employment.

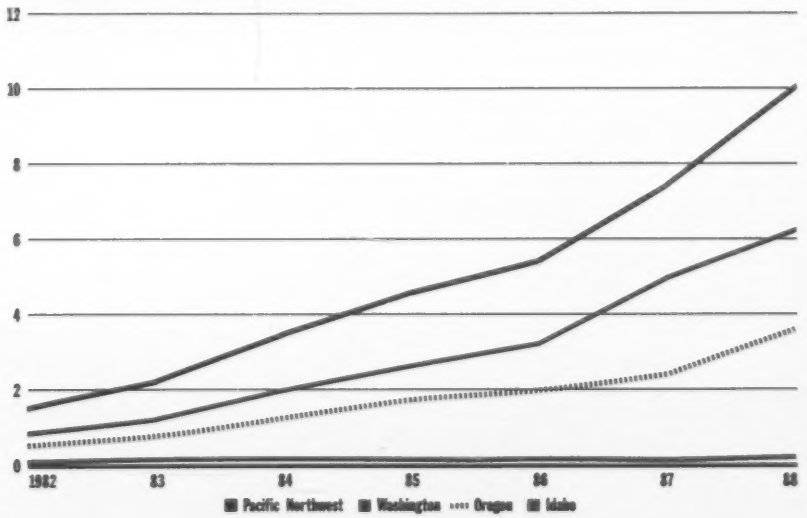
In Washington, nearly 500 firms employed 6,318 workers in 1988, and 180 of those software companies were sole proprietorships. The majority of the state's software employees (nearly 60 percent) were employed by prepackaged software firms, which are oriented toward microcomputer systems. Buoyed by the rapid growth of Microsoft, Aldus, and Microrim, along with numerous start-ups, Washington has the sixth largest concentration of prepackaged software developers in the nation. An additional 1,000 workers are employed in firms that provide custom programming services, and another 1,500 people work in integrated systems design firms.

The composition of Oregon's software industry differs from that of Washington in the relative distribution of workers within the three categories of software. Nearly half of Oregon's software work force of 3,575 is employed by firms that provide custom programming, and the state, compared with the national average, specializes in this software segment. Nearly 1,100 employees work in integrated systems design firms, and the remaining 700 are employed by prepackaged software producers.

Relative to the nation, Idaho lacks a specialization in software. The state's software firms employ nearly 250 workers, who are equally divided between the prepackaged software and custom programming fields.

Although all three states have benefited from remarkable growth in software employment between 1982 and 1988, Washington and Oregon, with annualized growth rates of 33 percent and 30 percent, respectively, supported employment levels that grew at twice the rate of the national software industry (Figure 1). People who work in software firms have enjoyed significantly higher wages and salaries and real wage growth than workers within other industries, even those within high-technology sectors. Aver-

Figure 1: Software Employment in the Pacific Northwest, 1982-1988
In thousands



age wages per software employee are nearly twice the states' average. In 1988 Washington's software employees earned an average annual wage of $44,207, compared with Oregon's average of $36,510 and Idaho's $28,127. Real annual wages for software employees have grown by 8.3 percent in Washington, 3.7 percent in Idaho, and 3.0 percent in Oregon since 1982.

The software industry's growth in real revenues has also been remarkable. Between 1982 and 1988, real revenues in the Pacific Northwest expanded fivefold—from $234 million to more than $1.17 billion. In Washington, software revenues reached an estimated $861 million in 1988, a sixfold increase of the 1982 total. Software industry revenues in Oregon hit $269 million in 1988—five times the 1982 figure.

The Formation of Software Development Hubs

Despite the sophistication of today's telecommunication networks, software firms are most likely to cluster within major metropolitan areas, such as Seattle and Portland. The nation's top 10 software development centers are all found in metropolitan areas, and they account for more than 70 percent of their respective state's total software employment. Three-quarters of Washington's and Oregon's software work force are located in Seattle and Portland. The dominance of metropolitan centers in software production is a factor of the industry's market orientation and its reliance on a skilled technical labor pool.

Recent studies by the Joint Economic Committee and the Office of Technology Assessment have outlined a number of locational characteristics that influence the development of software firms. The quality and availability of a skilled labor force, good educational facilities, and quality of life are common criteria. Friction-of-distance factors—such as the costs associated with moving raw materials and products—are relatively unimportant to the software industry; they're offset by the low per-unit transportation charges for high value-added products, the widely dispersed sources for needed input materials, and the industry's geographically scattered markets.

According to recent survey of Washington software firms conducted by Western Washington University's Professor Peter Haug, software developers in the state based their locational decisions on subjective personal concerns. In an overwhelming number of instances, the founder and/or CEO lived in Washington State and wanted to remain here. An Aldus executive remarked that Seattle is ideal for software companies because marketing and support services exist in abundance, there's an adequate and talented labor pool, and the quality of life is unsurpassed.

Although Seattle ranks only among the nation's top 20 in terms of software employment and sales, the city has become one of the most dynamic software centers in the country. Anchored by Redmond's Microsoft Corporation—the largest microcomputer software house in the world—the Seattle area has become a seedbed for new firms and a center for software innovation. Aldus and Microrim dominate the desktop publishing and database management markets, and a number of smaller companies have succeeded in exploiting specific market niches, including accounting (Bedford Software), computer-aided design and drafting (Generic Software), file transfer (Traveling Software), and shareware (Buttonware and Quicksoft).

The Seattle area also boasts of the nation's largest concentration of software developers for the Apple Macintosh personal computer. A number of dominant "vertical market" sellers provide software applications for energy and utility, mortgage banking, health care, mining, aerospace, and forest products companies.

The Export Orientation of Software

Although software is commonly thought of as an industry that services local needs, Northwest firms tend to export their products to other states and other countries. The U.S. Department of Commerce estimates that three-fourths of the region's total sales are from prepackaged and custom software, which are export intensive and command high income margins.

Washington's firms, according to the Haug survey of software companies, sell more than two-thirds of their custom programming services and prepackaged products to customers outside the state. Nearly 10 percent of these sales are to customers in Canada, Europe, and Japan. Seattle's export orientation is one of the strongest in the country, and nearly two-thirds of the area's total revenues come from prepackaged software exports.

Boise's much smaller software sector is also an exporter of prepackaged software. Spokane, Portland, and Eugene, in comparison, have developed an orientation toward servicing local markets. More than half of the software revenues generated in these cities come from integrated systems design, although recent growth, especially within the prepackaged segment, has strengthened their export orientation.

Future Prospects

While there has been a national slump in the demand for mainframe and minicomputers, the demand for personal computers and workstations continues to grow at a 20 percent per year pace. Given its orientation toward these hardware platforms, the Pacific Northwest's software industry is well-positioned for sustained growth. With Microsoft and Mentor Graphics as regional leaders, Washington and Oregon will continue to grow at a rate faster than the national average.

One dark cloud on the industry's horizon is the current shortage of skilled computer programmers, technical writers, and customer support staff. Many companies have felt the necessity to recruit outside the region for skilled workers. More than a few software developers have argued that most university-level computer science programs are weak in software development and technical documentation classes, areas that are extremely important to the industry.

Several U.S. states, including Oregon, are staking a claim on such computer hardware advances as parallel processing. A number of Portland firms—including Intel, Sequent Computer, Ncube, and FPS Computing—are involved in multiple processing research, and the results could lead to significant gains in computing power and efficiency. The state recently established the Oregon Institute for Advanced Computing to encourage the development of software applications and hasten the accessibility of powerful hardware for a broad range of user groups.

In sum, the software industry is ideally suited to the Pacific Northwest, and all signs indicate that the region's industry will continue to grow at a rapid pace—as long as the demand for computers remains high, and the labor supply, the quality of life in the area, and the existence of support services continues unabated. Bob Fulton, the chairman of the Washington Software Association, predicts that the region has all the elements needed to encourage the growth of software companies in the 1990s and to attract related businesses.

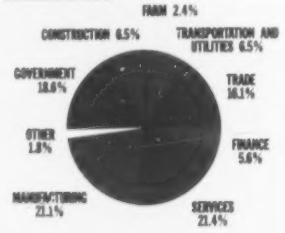
REGION WATCH

MAJOR VARIABLES, 1988

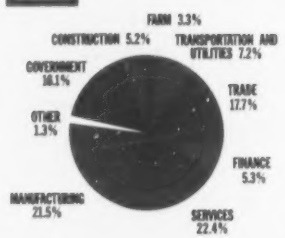
	WA	OR	ID
Total Personal Income *(in millions $)*	76,561	41,180	12,698
Population *(in thousands)*	4,648	2,767	1,003
Personal Income Per Capita *(in $)*	16,473	14,885	12,665
Rank Among States			
Personal Income	17	30	44
Personal Income Per Capita	18	30	44

SOURCES OF PERSONAL EARNINGS, 1988

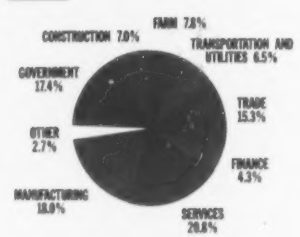
WASHINGTON



OREGON



IDAHO



NOTES:
1. Bureau of Economic Analysis, U.S. Department of Commerce.
2. Transfer payments are defined as payments to individuals for which they do not render current services.
3. The percent change is calculated on a quarter-to-quarter basis and is seasonally adjusted to annual rates.

TOTAL PERSONAL INCOME
In millions $

YEAR	WA	OR	ID
1940	1,130	646	230
1941	1,532	867	297
1942	2,254	1,248	436
1943	2,938	1,681	507
1944	3,234	1,721	550
1945	3,143	1,696	552
1946	3,188	1,836	608
1947	3,315	2,035	663
1948	3,633	2,295	739
1949	3,633	2,279	727
1950	4,082	2,526	784
1951	4,509	2,832	879
1952	4,890	3,010	961
1953	5,071	3,058	923
1954	5,203	3,026	932
1955	5,482	3,269	981
1956	5,761	3,500	1,078
1957	6,126	3,502	1,138
1958	6,281	3,594	1,165
1959	6,671	3,892	1,234
1960	6,914	4,019	1,263
1961	7,261	4,168	1,340
1962	7,831	4,432	1,437
1963	8,054	4,678	1,469
1964	8,416	5,039	1,518
1965	9,094	5,497	1,736
1966	10,322	5,952	1,771
1967	11,277	6,310	1,882
1968	12,532	6,874	2,004
1969	13,593	7,524	2,260
1970	14,234	8,169	2,486
1971	14,961	8,920	2,723
1972	16,163	10,006	3,097
1973	18,300	11,342	3,635
1974	20,772	12,816	4,265
1975	23,258	14,072	4,548
1976	26,071	16,058	5,148
1977	29,153	18,082	5,673
1978	34,250	20,822	6,579
1979	39,486	23,658	7,289
1980	44,562	26,063	8,129
1981	49,260	27,889	8,946
1982	51,420	28,263	9,079
1983	54,552	30,010	9,778
1984	58,416	32,302	10,357
1985	62,832	33,951	10,869
1986	66,263	35,500	11,199
1987	71,004	37,869	11,743
1988	76,561	41,180	12,698
1989: I*	81,424	43,288	13,452
1989: II*	83,325	44,439	13,693

*Annual rates

PERSONAL INCOME, 1988
In millions $

	WA	OR	ID
TOTAL PERSONAL INCOME BY PLACE OF RESIDENCE	**76,561**	**41,179**	**12,698**
Nonfarm Personal Income	75,230	40,207	11,988
Farm Personal Income	1,331	972	710
Population (in thousands)	4,648	2,767	1,003
Per Capita Personal Income (in dollars)	16,473	14,885	12,665
DERIVATION OF TOTAL PERSONAL INCOME			
Earnings by Place of Work	54,707	29,728	9,080
Less: Personal Contribution for Social Insurance	3,465	2,118	605
Plus: Adjustment for Residence	540	(314)	81
Equals: Net Earnings by Place of Residence	51,782	27,296	8,556
Plus: Dividends, Interest, and Rent	13,173	7,506	2,121
Plus: Transfer Payments	11,606	6,378	2,021
COMPONENTS OF EARNINGS BY PLACE OF WORK			
Wages and Salaries	44,475	23,345	6,662
Other Labor Income	3,779	2,266	616
Proprietors' Income	6,453	4,116	1,801
Farm	1,015	778	561
Nonfarm	5,438	3,339	1,241
EARNINGS BY INDUSTRY			
Farm	1,331	972	710
Nonfarm	53,376	28,756	8,370

NONFARM EARNINGS BY INDUSTRY, 1988
In millions $

	WA	OR	ID
AGRICULTURAL SERVICES, FORESTRY, FISHERIES, AND OTHER	821	344	125
Agricultural Services	334	191	114
Forestry, Fisheries, and Other	488	153	11
MINING	151	53	124
CONSTRUCTION	3,555	1,551	637
MANUFACTURING	11,527	6,392	1,635
Nondurable Goods	2,906	1,543	697
Food and Kindred Products	796	526	381
Paper and Allied Products	648	391	78
Printing and Publishing	523	333	79
Chemicals and Allied Products	524	71	137
Durable Goods	8,621	4,849	938
Lumber and Wood Products	1,235	2,071	493
Machinery, Except Electrical	566	564	179
Primary Metal Industries	475	387	3
Transportation Equipment	4,681	216	24
TRANSPORTATION AND PUBLIC UTILITIES	3,568	2,154	594
Railroads, Trucking, Water, and Other	2,294	1,318	354
Communication	967	496	121
Electric, Gas, and Sanitary Services	307	341	120
WHOLESALE TRADE	3,390	2,076	472
RETAIL TRADE	5,410	3,172	914
FINANCE, INSURANCE, AND REAL ESTATE	3,071	1,583	394
Banking	1,180	557	164
Other Finance, Insurance, and Real Estate	1,891	1,026	230
SERVICES	11,722	6,651	1,893
Business Services	2,311	1,235	435
Health Services	3,697	2,309	572
FEDERAL AND CIVILIAN	2,136	971	352
MILITARY	1,365	109	149
STATE AND LOCAL	6,659	3,462	1,080
TOTAL NONFARM EARNINGS	53,376	28,756	8,370

PERSONAL TAX AND NONTAX PAYMENTS, 1988
In millions $

	WA	OR	ID
FEDERAL GOVERNMENT (net of refunds)	7,813	3,823	832
Individual Income Tax (net of refunds)	7,499	3,668	790
Individual Income Taxes (gross)	8,863	4,291	950
Less: Refunds	1,365	623	160
Fiduciary Income, Estate and Gift, Nontax	314	155	43
STATE GOVERNMENTS	635	1,677	436
Individual Income Taxes	0	1,237	307
Death and Gift Taxes	17	10	2
Motor Vehicle Taxes	108	54	27
Other Taxes	27	21	15
Nontax Payments	483	355	84
LOCAL GOVERNMENTS	623	334	211
Other Local Taxes	26	26	2
Local Nontax Payments	603	308	209
STATE AND LOCAL PERSONAL PROPERTY TAXES	59	0	0
TOTAL PERSONAL INCOME	76,561	41,180	12,698
Less: Total Personal Tax and Nontax Payments	9,135	5,834	1,479
Equals: Disposable Personal Income	67,426	35,346	11,219
PER CAPITA DISPOSABLE PERSONAL INCOME	14,508	12,776	11,190

TRANSFER PAYMENTS, 1988[2]
In millions $

	WA	OR	ID
GOVERNMENT PAYMENTS TO INDIVIDUALS	10,877	5,938	1,866
Old-Age, Survivors, and Disability Insurance	3,975	2,710	823
Medical Insurance Payments	2,317	1,176	395
UNEMPLOYMENT INSURANCE BENEFITS	390	205	67
INCOME MAINTENANCE BENEFIT PAYMENTS	881	412	106
Aid to Families with Dependent Children	418	135	20
Food Stamps	178	122	37
VETERANS BENEFIT PAYMENTS	373	217	65
BUSINESS PAYMENTS TO INDIVIDUALS	437	260	97
TOTAL TRANSFER PAYMENTS	11,606	6,378	2,021

PERCENT CHANGES IN[3] PERSONAL INCOME

YEAR	QTR	US	WA	OR	ID
1984	I	3.0	0.5	1.8	−1.8
	II	1.3	0.8	1.1	0.5
	III	2.1	1.9	1.6	1.7
	IV	1.6	1.2	1.5	?.1
1985	I	2.3	2.2	1.5	1.0
	II	1.4	1.0	0.9	0.2
	III	0.7	0.9	0.5	−0.5
	IV	2.0	2.0	1.8	2.5
1986	I	1.7	1.6	0.4	−1.4
	II	1.7	1.9	1.7	2.1
	III	0.7	1.4	1.2	1.6
	IV	1.5	3.7	1.6	1.9
1987	I	2.3	0.3	1.5	0.6
	II	1.5	1.9	1.9	1.7
	III	1.5	1.3	1.6	0.8
	IV	2.0	2.9	2.2	0.9
1988	I	0.9	1.3	1.8	1.8
	II	2.0	2.2	2.6	3.1
	III	2.0	1.6	1.9	1.9
	IV	2.7	2.7	3.3	3.4
1989	I	1.6	2.9	1.0	1.6
	II	2.1	2.3	2.7	1.8

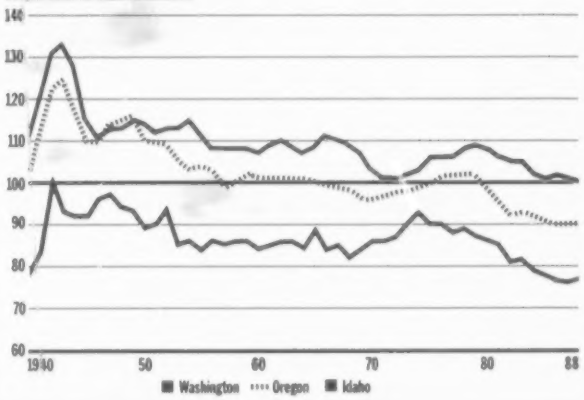
An Explanation of Personal Income

State personal income accounts constitute the single most important source of information about the income conditions of a state's residents. Used in conjunction with other statistics such as population, employment, and price changes, personal income data not only form the basis for determining people's well-being on a geographic basis, but are useful in making economic forecasts, assessing market opportunities, and determining the allocation of payments for governmental programs. Personal income data are an indispensable tool for analyzing regional economic change.

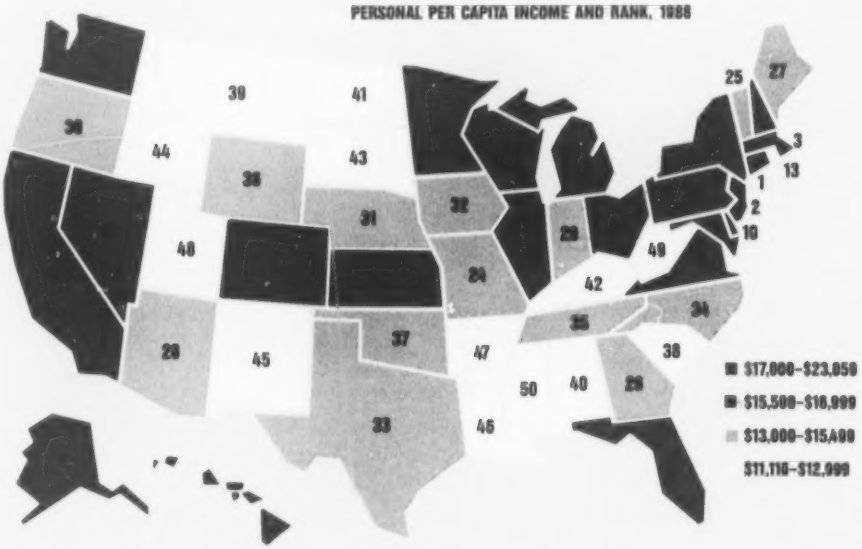
A state's personal income is defined as the income received by, or on behalf of, its *residents*, excluding those who are temporarily working abroad. It consists of income received by individuals from all sources: wages and salaries of employees, net income of proprietors, dividends, net interest, rent, and transfer payments. Personal income is a description of the income people received, as distinct from Gross National Product, which measures the value of goods and services produced.

The Bureau of Economic Analysis (BEA), a section of the U.S. Department of Commerce, estimates personal income based on data supplied by the employment security departments of each state and the other governmental agencies. The BEA reports national personal income estimates monthly, while it publishes estimates for states quarterly with a lag of about five months. These estimates are refined as more complete data become available. The BEA makes county estimates on an annual basis, with publication lagging more than a year. Although the quality of data varies, the methods of estimation assure consistency across states and with national aggregates.

PER CAPITA PERSONAL INCOME
as percent of U.S. 1940–1988



PERSONAL PER CAPITA INCOME AND RANK, 1988



Does Employment Growth Affect the Northwest's Unemployment Rates?

by Michael Rahm

Unemployment is always a matter of serious concern to policy-makers, legislators, business executives, and union officials. Even in periods of relative prosperity, the general public frequently asks about the persistence of unemployment and the possibility of reducing it. This is particularly true in Washington and Oregon, where unemployment rates in most years remain stubbornly above the national average.

When unemployment reaches a level that people perceive as too high, their instinctive reaction is to pressure the government to create jobs, which, they believe, will alleviate the problem. This reaction prompted a strong response when the region's economy suffered from the collapse of the aerospace industry in the Puget Sound area (1969-71) and from the sharp cutbacks in forest products manufacturing (1981-82), and again when Idaho encountered a prolonged period of stagnation (most of the 1980s). While the efficacy of traditional economic development techniques in generating new employment opportunities has often been questioned, a more fundamental point should be raised: Does expanding regional employment actually reduce unemployment levels?

The Pacific Northwest provides an interesting economic laboratory for exploring the relationship between employment growth and unemployment because the region has experienced a number of remarkable boom periods. In each of these instances, employment rose by more than 5 percent per year for two or three years, and yet only two of the booms succeeded in lowering unemployment by more than 10 percent (Table 1). During Idaho's prosperity in the early 1970s, unemployment actually increased. Even in the best of economic times, about 12 new jobs have been needed to remove one worker from the unemployment rolls.

The Continually Changing Labor Force

To understand this apparent inability of strong employment growth to eliminate unemployment, we must first recognize the dynamics of the local labor force. Just as periods of slack employment discourage some people from seeking work, periods of strong job opportunity bring many, who otherwise might be unemployed, into the local labor market. But this "encouraged worker" phenomenon itself adds to unemployment, since there is invariably some period of time—even in the strongest economy—between a person's decision to seek work and his or her first day on the job.

The precise impact of increases in local labor force participation on unemployment is difficult to measure, but economists generally believe that it is responsible for one percentage point or more in the unemployment rate. The main reason why local labor force participation is difficult to measure is that it is so quickly confounded by the impact of labor mobility. Within months of a strong surge in employment opportunities—and invariably within a year or two—new workers and job seekers begin arriving. While many come with jobs already promised to them, most come only with the expectation of good prospects and thereby swell the ranks of the unemployed.

The strength of the migration response has had a substantial impact on the Pacific Northwest, and the clearest example of the process is found in Washington (Figure 1). One year after the beginning of the Boeing boom in the late 1960s, the state's population began to surge, and it continued to grow strongly until 1970, a year after the cutbacks were announced. Population growth then declined until 1973, when it leveled off to a net increase of just under 1 percent per year.

Washington's population took off again during the upswing of the late 1970s, which was fueled not only by aerospace recovery, but by the strength of wood products, heavy construction, and the sectors servicing the Alaska pipeline. In just four years, from 1977 to 1980, the population increased by more than 400,000. But by 1980, employment growth had slowed abruptly, the 1981-82 recession soon followed, and population growth returned to the net reproduction rate. At present, the state is in an intermediate position, but the strength of the economy in the Puget Sound region is creating noticeable pressure on the local transportation system and the housing market.

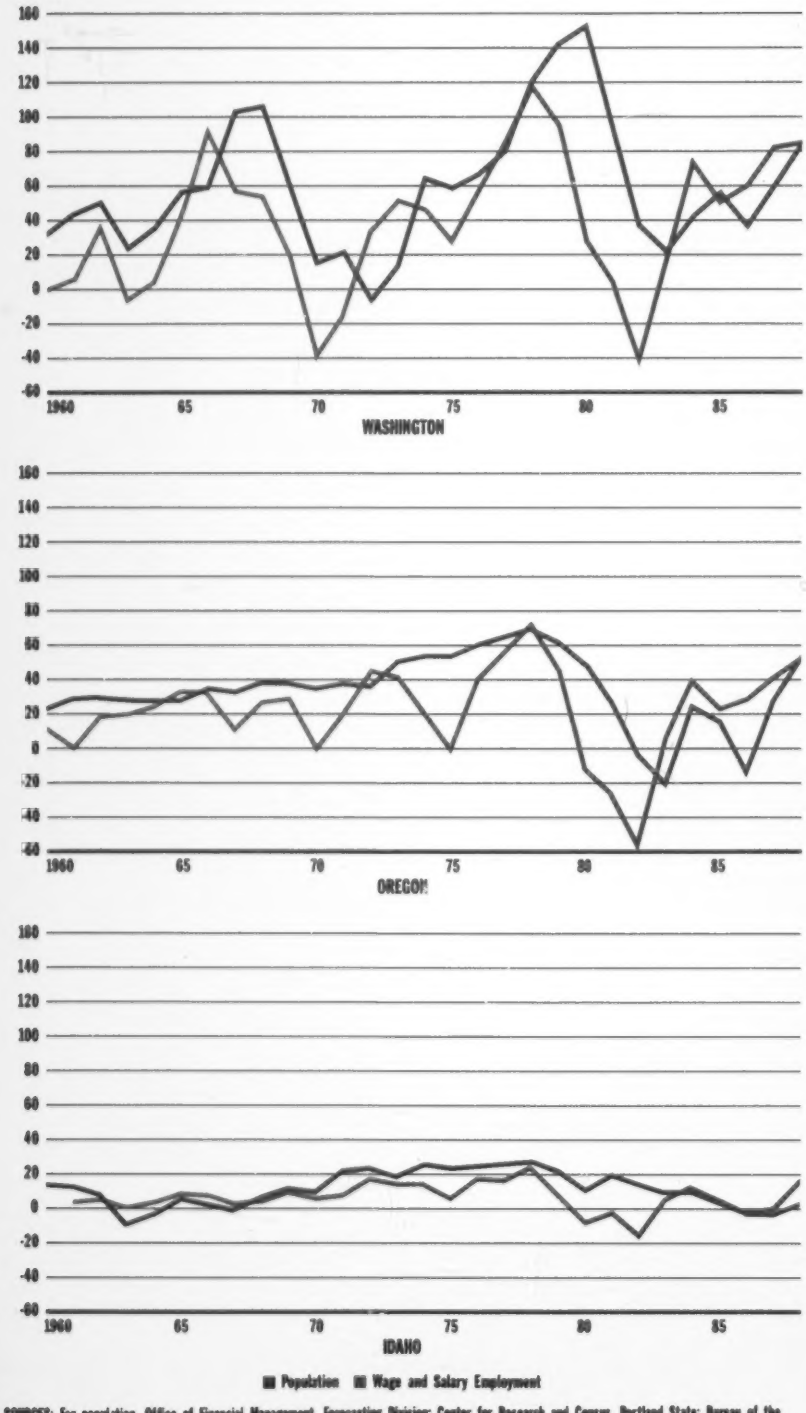
Similar patterns of change occurred in Oregon and Idaho, although they have not been as sharply defined. In Oregon, population growth closely tracked employment growth throughout most of the 1960s, then remained relatively strong and steady at about twice the net reproduction rate through two cycles in the forest products industry. Both employment and population rose strongly in the late 1970s. Once the crash in forest products employment began in 1980, the state recorded significant outmigration until 1983. Oregon's population

Table 1: The Behavior of Unemployment during Pacific Northwest Booms

	CHANGE IN EMPLOYMENT	PERCENT	CHANGE IN UNEMPLOYMENT	PERCENT
Washington, 1965-68	203,100	18.4	(3,300)	(5.1)
Oregon, 1971-73	104,400	12.5	(6,300)	(9.2)
Idaho, 1971-74	46,000	15.9	1,600	8.2
Washington, 1976-79	325,000	21.9	(9,000)	(6.4)
Oregon, 1976-78	158,000	16.4	(30,000)	(29.4)
Idaho, 1976-79	41,800	11.4	1,800	(6.8)

SOURCES: Washington State Employment Security Dept., State of Oregon Employment Div., State of Idaho Dept. of Employment.

Figure 1: Net Change in Population and Employment, 1960–1988
In thousands



SOURCES: For population, Office of Financial Management, Forecasting Division; Center for Research and Census, Portland State; Bureau of the Census. For employment, Washington State Employment Security Dept., State of Oregon Employment Div., State of Idaho Dept. of Employment.

growth has remained near net reproduction for most of the 1980s, and employment growth has absorbed the unemployment caused by the 1980-82 recession and the arrival of new entrants in the labor force.

Idaho's pattern of population and employment change has been similar to Oregon's, in large part because the forest products and food processing industries reflect the economic health of both states. Because of technical differences in the way timber is marketed in the Rocky Mountain region, Idaho's forest products industry was less vulnerable to the sharp recession in 1975, and employment growth remained positive throughout the 1970s. Population growth was more than double the net reproduction rate in every year of the decade. The one oddity about Idaho is the apparent lack of outmigration in the early 1980s, after the crash of the forest products industry. It wasn't until after 1984 that people began leaving the state. During most of the late 1980s, total employment remained static.

A Mirror Image

Population growth follows job growth so closely that the impact of rapid, localized economic growth on unemployment is almost fully offset by migration. In years when employment declines, the increase in unemployment forms an almost perfect mirror image. In many cases, the increase in unemployment is greater than the decrease in employment because of the lagged effect of outmigration. Many newcomers to the Pacific Northwest don't find out until it's too late that their expectations have been overtaken by events, and the jobs they were promised or hoped for are no longer available. Even a pause in the employment growth causes an increase in unemployment.

The mirror image effect is considerably weaker during periods of sustained employment growth. When there is a decrease in the number of unemployed, it is usually only a small fraction of the increase in employment. The only clear exception to this pattern is Idaho in the 1980s, when oscillations in employment in a fundamentally stagnant economy were often matched by an equal and opposite change in unemployment.

Idaho's situation in the 1980s is important to note because it was so exceptional. The Pacific Northwest has a history of booms and busts, but the three states have generally enjoyed the benefits of economic dynamism for most of the last 50 years. While the road to

economic growth has often been bumpy, it has almost always headed uphill. Yet Idaho in the 1980s was anything but dynamic. After a weak recovery from the 1982 recession, the state's economy was essentially flat for most of the decade, in large part because it is dominated by industries with little capacity for growth.

As long as the national economy is strong, unemployment tends to cure itself—if for no other reason than because people decide to move away. Unhappily, those who leave the area are often the young, the educated, and the entrepreneurial.

Why Does High Unemployment Persist?

The dynamics of economic growth and unemployment in the Pacific Northwest reveal one final and fascinating puzzle: the persistently high unemployment rates in the two coastal states of the region. For most of the last 30 years in Washington and most of the last 20 in Oregon, unemployment rates have remained on average one percentage point higher than the national rate. Only rarely and briefly has unemployment even approached the national level in these states (Figure 2). With what we know about the dynamism of the economies of Washington and Oregon during the time period, the persistence of these elevated rates has always been troublesome.

One of the most plausible hypotheses for high unemployment is that key sectors in Washington and Oregon display a strong seasonal influence. The forest products industry is Oregon's primary manufacturing employer and Washington's second most important. Food processing is another major employer in both states. Given that these two industries have a significant seasonal component, it would not be surprising to find that seasonal layoffs are a major contribution to above average unemployment rates.

A problem with the seasonal-industry hypothesis is that Idaho, of the three states, has the largest share of its work force in the forest products and food processing industries, but typically has unemployment rates at or below the national average. It may be, however, that other unemployment-reducing factors counterbalance the impact of seasonal work in Idaho, while its influence on unemployment remains strong in Washington and Oregon.

Another plausible hypothesis is that high-wage industries, such as aerospace, attract people into the state who are willing to endure more frequent or longer periods of unemployment in the hope of landing one of the better-paying jobs. The high-wage hypothesis, however, doesn't hold true in Oregon, where wages are usually at or below the national average. Furthermore, it's not clear whether Washington's employers actually pay higher wages for the same work. In addition, the industrial restructuring of the early 1980s affected incomes in all three states in similar ways and, in the process, eroded much, if not all, of Washington's historical income advantage.

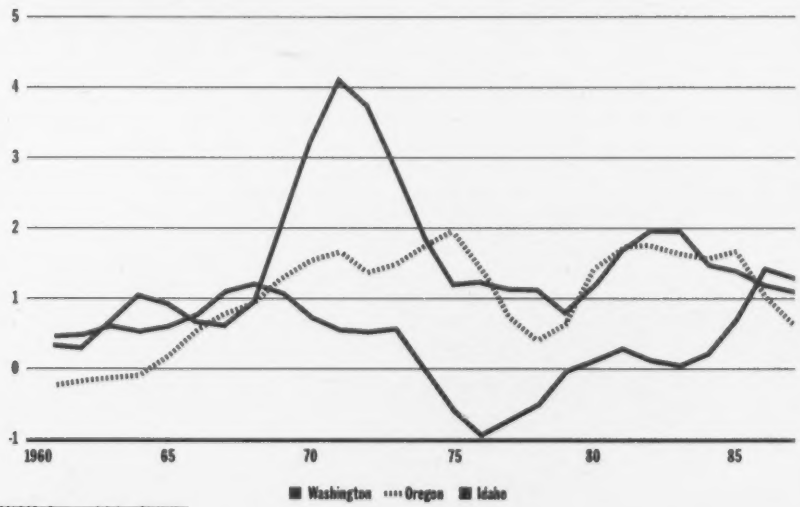
The third hypothesis for explaining the unemployment differential is possibly the most difficult to quantify—and is certainly the most interesting. The area between the Coast Range and the Cascade Mountains of Washington and Oregon is frequently described as one of the most appealing places to live in the United States. The cities that skirt the Puget Sound and those that line the Willamette Valley contain most of the population of the two states. These centers are large enough to offer many of the amenities of modern urban life and yet provide easy access to a variety of outdoor activities in a beautiful setting and a benign climate.

Many newcomers to the Pacific Northwest don't find out until it's too late that their expectations have been overtaken by events, and the jobs they were promised or hoped for are no longer available.

The area's reputation as an attractive place to live has two effects, both of which tend to lengthen periods of individual unemployment and, in the aggregate, raise the unemployment rate. First, many people come to the region with less than certain employment prospects simply because they want to take up residence here. Second, those who become unemployed (including those who might be displaced by the newcomers) are often reluctant to leave the area.

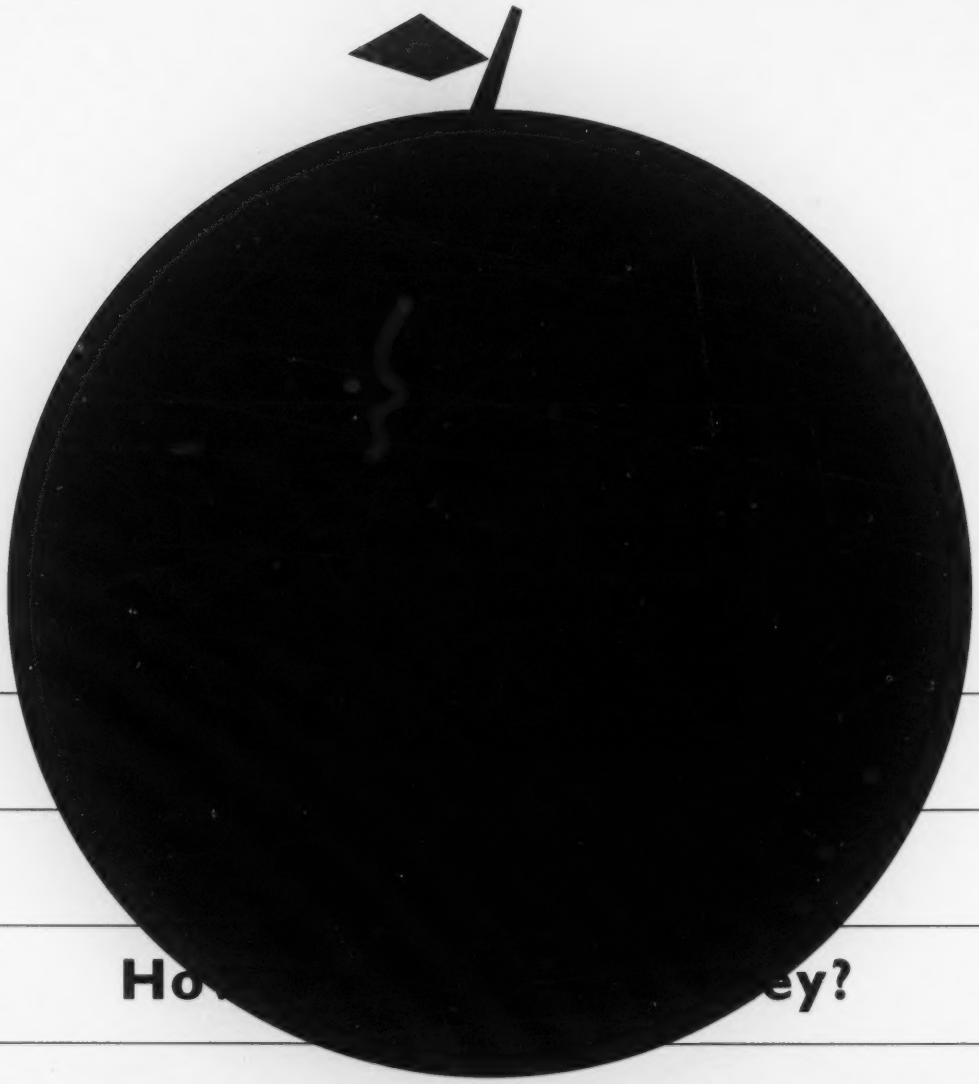
Thus it may be that relatively high unemployment in Washington and Oregon doesn't reflect some inherent weakness in the economies of the two states. It could, in fact, be indicative of one of the region's major strengths. An unemployment rate nearer to the national average may someday mean that the Pacific Northwest has become just like the rest of the country in ways that we may not appreciate.

Figure 2: Percent Difference Between State and National Unemployment Rates, 1960–1987
based on three-year moving average



SOURCE: Bureau of Labor Statistics

Michael Rahm is a Seattle-based economist.



Ho[redacted]ey?

by Raymond A. Jussaume, Jr. and Annabel Kirschner Cook

The people of Japan, like those of all cultures, have a tradition of borrowing ideas, artifacts, and technologies from others. For centuries, they were inspired by China and Korea, but in this century, the Japanese have shifted much of their attention toward the Occident. The eagerness with which many goods and practices from the West have been incorporated into Japanese lifestyles has led many observers to argue that Japan is becoming Westernized.

While the number of lifestyle parallels between Japan and the nations of the West is growing, it would be inaccurate to assume that the Japanese have abandoned their traditional practices. Businesses that seek to market their products in Japan would do well to understand that substantial behavioral differences persist between Japanese and American consumers.

To demonstrate our contention, we researched one of the most basic of all human behaviors: food consumption. A cross-national survey conducted in Seattle and Kobe in the summer of 1988, Japanese longitudinal survey reports, and the Japanese government's household consumption surveys from 1963 to 1984 show that while Japanese tastes and eating habits have certainly changed, food consumption behaviors in that country retain their own distinct flavor.

Pleasing t[redacted] as the Taste

As Japan has industrialized, Japanese society has gone through a number of variations in lifestyle patterns. In food consumption, for example, Japan has experienced the transformations known as Engel's Law, which holds that the percentage of household income spent on food decreases as industrialization progresses, and Bennett's Law, which maintains that the consumption of starchy staples declines and that of animal products, fruits, and vegetables increases. In other

words, people in modernizing societies consume a wider variety of quality food items as their incomes grow. While people who experience these transitions may spend more money, in absolute terms, on food than they did previously, their spending is less of a burden because their earning potential expands more rapidly than their biological ability to consume more calories.

This trend is verified by the results of a Washington State University IMPACT Center food consumption survey that was done in Seattle and Kobe in 1988. More than 70 percent of the respondents in both countries either agreed or strongly agreed that it was better to buy the best quality foods—even if they cost more—whenever possible, and more than 80 percent concurred that it was better to buy fresh foods rather than frozen. As household and societal wealth expands, not only do people become more interested in eating a greater variety of quality foodstuffs, they also become increasingly concerned about the aesthetics of food preparation and consumption. More than 90 percent of the respondents in both countries agreed, for example, that "A meal should be pleasing to the eye as well as to the taste."

This interest in the appearance of food and the atmosphere surrounding meal consumption should not be taken as an indication that consumers in industrialized societies replace genuine concerns for product quality with cosmetic ones. Japanese respondents were less likely to disagree with the statement "Attractive packaging is an indication of good food quality" than their American counterparts, but it is safe to say that consumers in both cultures are looking beyond packaging when they select food for themselves and their families.

An important contemporary concern in both societies is with chemical residues and additives in food products. In Japan, as well as in the United States and Europe, the industrialization of agricultural production and food processing has led to an increase in the use of artificial substances, which can have negative side effects on human health. Consumers, in response, have become increasingly concerned about what goes into and remains in the products they eat. More than three-quarters of the survey respondents in both countries agreed that "It is better to buy processed and packaged foods that have no preservatives or additives" and "Farmers should grow food with less pesticides and herbicides."

Japan's entrance into an era of postindustrialization has also been accompanied by an expansion in the percentage of married women who are employed outside the home. While young Japanese women continue to "retire" from their jobs to raise their children, there is also a growing tendency for them to seek work again once their children are older. In 1982 more than 50 percent of Japanese married women were working outside the home. As in the United States, working Japanese women are often expected to carry out the bulk of household tasks in addition to their jobs. In Kobe, 67 percent of the respondents to the survey agreed that "Speed and ease of preparation are important considerations when buying food"; 72 percent of the Seattle residents gave the same response.

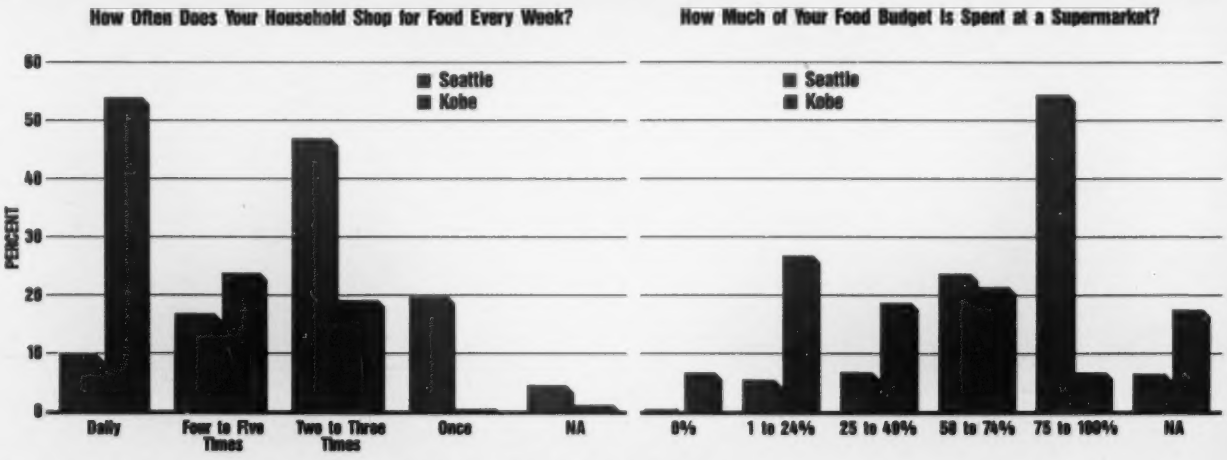
This evidence suggests that Japanese consumers are not radically different from those in America in how they value food quality and the role food consumption plays in their lives. There are differences, however, in how they act out these concerns. Consumers are conditioned by history, geography, and society to implement their values in ways that are compatible with local cultural influences.

Fr[illegible]

The Seattle-Kobe survey found that Japanese consumers, unlike their American counterparts, make many more shopping trips in a week and patronize a greater number and variety of establishments (Figure 1). The retail system in Japan is older and more complex than that in the United States, population densities in urban areas are greater, roads are more crowded, and shopping traditions are firmly established. In addition, Japanese kitchens and refrigerators are smaller than those in the United States, so it is easier and more advantageous for Japanese women to go shopping more frequently.

It's not only how consumers buy their groceries, but what they eat that distin-

Figure 1: Differences in Food Shopping Patterns, Seattle and Kobe, 1988



SOURCE: "Food Consumption in Seattle, Washington and Kobe, Japan," 1988, IMPACT Center, Washington State University

guishes the Japanese and the Americans (Table 1). Seventy percent of the Kobe survey respondents, for example, said that they eat seafood at least three times a week; only 16 percent of the Seattle respondents said the same. Japan's history as an island nation reliant on the sea for both protein and edible plant life still strongly influences people's consumption patterns.

Surprisingly, 48 percent of the Kobe respondents reported that they eat beef three or more times a week, compared with only 25 percent of the Seattle residents. This appears to contradict the fact that the American per capita consumption of red meat is much higher than that of the Japanese. The Japanese, however, often use small portions of beef, pork, chicken, or other animal products mixed with fried vegetables, noodles, or other foods; in America, meat is usually served as the main dish. It is thus more accurate to say that Americans consume more beef and other animal products than the Japanese, but not as frequently.

The Seattle and Kobe respondents also differed in their consumption of fruits and vegetables. Ninety-one percent of the Kobe residents consume fresh vegetables at least three times a week, compared with 80 percent of the Seattle participants. Moreover, 75 percent of the Kobe respondents reported that they eat fresh vegetables daily; only 46 percent of the Seattleites consume vegetables every day. In addition, most of the Kobe residents indicated that they are in the habit of eating vegetables at breakfast, as well as at lunch and dinner.

The Kobe participants are less likely to eat fresh fruit at least three times a week than their Seattle counterparts. In the United States, fruits and vegetables are thought of as equally important food items. Japan, a vegetarian society until 125 years ago, has always considered vegetables essential for a healthy diet; fruits, once called "water sweets," are thought of as a snack food.

Sus[illegible] or Ha[illegible]nd Steak?

Nationwide surveys conducted in Japan provide additional detail of the consumption behaviors of the Japanese and illustrate that traditional mealtime preferences are unlikely to change. A sample of consumers, surveyed by the Japan National Public Broadcasting Service (NHK) in 1983, showed a distinctly Japanese pattern of food consumption.

Respondents, grouped by age and sex, were asked to indicate one or more of their favorite meals. Heading the list of the 15 most popular dishes in Japan was raw fish. This was followed by Korean-style grilled beef, sushi, boiled vegetables, grilled fish, and tempura. Hamburgers and steaks, the favorites of many Americans, ranked 13th and 14th, respectively. It is especially interesting to note that Japanese teenagers were more likely to list Korean-style grilled beef, curry rice, salad, and boiled beef as their favorites than hamburgers and steaks.

We know that life has become more fast-paced in Japan, as it has in the United States. Preparing and consuming a traditional Japanese breakfast, for example, is too time-consuming for many households, particularly those in which there is no stay-at-home wife and mother. Between 1968 and 1981, the NHK survey reported, the consumption of rice at breakfast fell from 85 to 71 percent and the use of bread increased from 11 to 24 percent. This would seem to indicate that the Japanese are adopting a more American style of breakfast, but Japanese families still eat a substantial amount of rice at lunch, and consumption has even increased slightly at the evening meal.

In a survey of 3,000 Japanese consumers published in *Brain*, a Japanese magazine, researchers found that consumers retain a fondness for the elaborate cuisine and the preparation techniques that have a Japanese character to them. Between 1975 and 1982, for example, the percentage of Japanese who considered themselves very picky about the taste of their food fluctuated between 47 and 50 percent. In addition, only one-quarter of the Japanese surveyed indicated a preference for Western cooking. There was a small increase in the percentage of those willing to try new dishes, but those respondents in 1982 totaled less than one-third of the sample.

Ho[illegible]ding Pa[illegible]-1984

The most extensive data on food consumption come from Japanese household spending surveys, which reinforce the finding that food consumption in Japan is, in many aspects, unique. Japanese households in 1984 spent substantially more of their food budget on fish, vegetables, and cereals (primarily rice) than households in the United States (Figure 2). American households, in comparison, spent more of their food dollars

Table 1: Frequency of Food Consumption
percentage of respondents

ITEM		MORE THAN 3 TIMES A WEEK	1 TO 2 TIMES A WEEK	MONTHLY	RARELY
Seafood	Seattle	16	49	27	8
	Kobe	70	27	2	1
Beef	Seattle	25	50	14	11
	Kobe	48	40	8	3
Pork	Seattle	5	30	35	30
	Kobe	35	48	12	5
Eggs	Seattle	32	48	15	5
	Kobe	88	11	1	1
Chicken	Seattle	33	53	12	3
	Kobe	34	49	13	4
Rice	Seattle	17	36	37	9
	Kobe	98	0	2	0
Fresh Fruit	Seattle	84	14	3	0
	Kobe	78	16	3	2
Canned Fruit	Seattle	12	20	29	40
	Kobe	2	9	33	56
Fresh Vegetables	Seattle	80	16	4	1
	Kobe	91	6	1	2
Frozen Vegetables	Seattle	18	34	29	19
	Kobe	2	11	19	68
Canned Vegetables	Seattle	10	20	23	47
	Kobe	1	0	9	90

SOURCE: "Food Consumption in Seattle, Washington and Kobe, Japan," 1988, IMPACT Center, Washington State University

on meat and dairy products and more than twice as much money on eating out as Japanese households.

The portion of the Japanese food budget that went to purchase meat increased from 8 percent in 1963 to 11 percent in 1973, but has declined slightly since that time. In 1984 about 8 percent of a household food budget was spent on beef, pork, and chicken, and another 8 percent was used to buy rice, which continues to be an important element in the Japanese diet.

The household expenditure data, like the findings from the Seattle-Kobe survey, show that the Japanese spent more money on fish and shellfish than on meat. Typically, consumers purchase fresh fish, and the survey listed more than 15 varieties that are common to the Japanese diet. Of the 15 percent of their food budget that is devoted to fish and shellfish, close to 6 percent of the total in 1984 was spent on salted fish (varieties of salted sardines, dried horse mackerel, and cuttlefish) and fish paste products (baked, fried, and steamed fish paste cakes, bars, and patties). Such foods are unknown in most American households.

Dairy products play only a small role in the Japanese diet, and the amount that households spent on these items actually declined from a peak of 8 percent in 1968 to 5 percent in 1984. Expenditures on fruit rose from 5 percent of the household budget in 1963 to 7 percent in 1973, but have since fallen back to 5 percent. As indicated in the Seattle-Kobe survey, the Japanese prefer fresh fruit and spent only a fraction of their food costs on canned and preserved fruits in 1984.

In the vegetable category, which totals 12 percent of the Japanese food budget, consumers typically purchase fresh vegetables, but dried vegetables, seaweeds, soybean products (primarily bean curd), and other processed vegetables (pickled radishes and chinese cabbage) are common items. Again, these are foods that rarely appear on American grocery lists.

As in the United States, the percentage of the Japanese food budget spent on precooked foods (packaged lunches, take-out food served with rice or noodles, purchased salads, cutlets, fried food, and Chinese-style fast food) and eating out has increased dramatically in recent years, and, in fact, these categories are the ones that have the most potential for future increases. Expenditures on take-out food have increased from 3 to 6 percent of the food budget, and the portion of the Japanese budget devoted to eating out has increased from 7 to 15 percent. This should not be construed as a Westernization of the Japanese diet, however, for the people who go out to eat frequently order noodle and sushi dishes. Purchases of Western meals represented an extremely small subcategory, which amounted to less than 1 percent of the total food budget in 1984.

M… …ion
Is… …ation

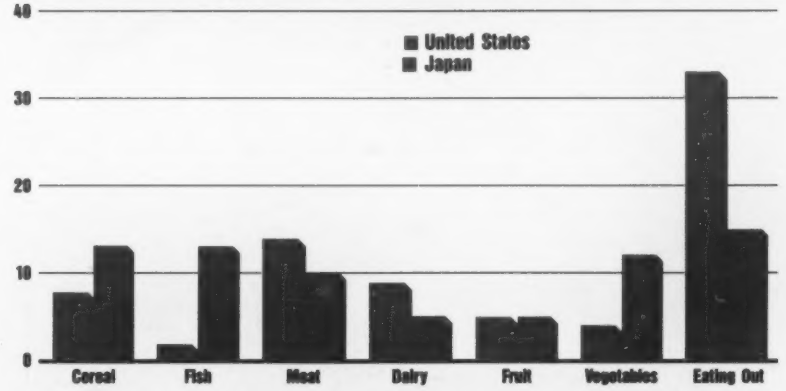
In the past, businesses marketing their products in Japan could depend on a rapidly growing population to increase their sales, but this is no longer the case. Between 1970 and 1980, Japan's population grew by 13 percent. That figure fell to just 5 percent during the 1980s and will drop to 4 percent in the 1990s. Japan's birth rate is now extremely low, below that of the United States. There is a large number of teenagers in Japanese society—the echo effect of Japan's earlier baby boom—but the number of children in each subsequent age group is progressively smaller, and Japan now has one of the most rapidly aging societies in the world.

In the future, as the number of Japanese teenagers and young adults, the group that most readily experiments with Western consumption behaviors, decreases in size, the number of middle-aged and older adults will expand rapidly. While novel products from the United States will continue to have appeal in Japan, some U.S. businesses may decide to target the daily purchases of the average Japanese household. To do this, they will have to acknowledge and market to the more traditional tastes of these consumers.

Japan has been America's best customer for agricultural exports for the past 25 years; these sales, however, have been predominantly in raw materials, such as wheat and corn. New opportunities are appearing for niche markets in fish, high-value fruits and vegetables, as well as in value-added processed food products, but successful traders in these commodities will have to attract the typical Japanese consumer.

Japanese and American consumers share a high level of concern for food quality and safety, as well as a strong interest in making their meals as pleasurable as possible. The expression of these shared values, however, is different in the two cultures, and is likely to remain so. Businesses that take these contrasts into consideration and adapt their products to the unique aspects of Japanese consumption behaviors will be more successful at making inroads into the Japanese market than those that assume that modernization means Westernization.

Figure 2: Percent of the Household Food Budget Spent on Specific Foods



SOURCES: U.S. Bureau of Labor Statistics, 1985; Annual Report on the Family Income and Expenditure Survey (Japan), 1984

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TRAINING FOR THE MILLENNIUM

THE ROLE OF AMERICAN BUSINESS IN EDUCATION

BY JACK WHELAN

In the fall of 1988, the high school class of the year 2000 entered the first grade. By the time they graduate in 10 years, these students will enjoy a seller's market in a labor-short economy. But the fact that there will be so few high school graduates in 2000 will not guarantee them jobs. Unless education and training programs change rather dramatically, many 18 year olds won't have the skills employers need.

PHOTOS BY PETE KUHNS

Much has been written recently about how the demographics of the "birth dearth" will affect the labor markets of the 1990s and beyond. According to the often-cited Hudson Institute's *Workforce 2000* report, population growth, which climbed at an average yearly rate of almost 1.9 percent in the 1950s, will slump to only 0.7 percent per year by 2000. The labor force, which exploded by 2.9 percent per year in the 1970s, will expand at an annual rate of only 1 percent in the 1990s. The number of 16- to 24-year-old workers will drop by 2 million from present levels. While the numbers alone indicate a labor shortage, the situation is further complicated by the fact that 42 percent of the new entrants will be minorities and immigrants, many of whom have not historically had the level of skills employers need.

The birth-dearth demographics are already having an impact in the Puget Sound area. "The problem started first in fast foods," says Al Starr, the director of the Seattle-King County Private Industry Council, a government-funded job training program, "spread to retailers, and now is affecting some area manufacturers."

The Boeing boom has had a serious impact on several local manufacturing companies. Boeing has hired in the neighborhood of 25,000 people in the last two years, according to Larry Schinke, the firm's human resource director. But he says that the company has not had trouble finding adequately skilled candidates. Boeing has, however, soaked up the available pool of skilled workers and has forced smaller companies like John Fluke Manufacturing and Eldec to search for the people they need.

"We're scraping the bottom of the barrel," says Eldec's training director Julie Marshall. "The good news is that Boeing is getting lots of orders—and that means orders for us. The bad news is that as Boeing grows, it lures away a lot of our talent. We're having to hire more unemployed people coming through Private Industry Council programs to find entry-level assemblers. We're having to offer vocational English as a second language at work because of the influx of so many immigrants who cannot otherwise read blueprints or tell the difference between a diode and a capacitor. And the situation is not going to get any better."

Jim Rand at Fluke echoes Marshall's concerns. "We've been insulated until now," he said. "But as our economy grows, we're seeing higher turnover in our lower pay grades. We're looking at more and more immigrants. We hire people now who have at least a two-year degree, but we're not anticipating that we'll be able to do so in the future."

If this seems good news for people who have a hard time finding work, it presents an enormous challenge for business. As Xerox chief executive officer David Kearns stated, "The American work force is in grave jeopardy. We are running out of qualified people. If current demographic and economic trends continue, American business will have to hire a million new workers a year who can't read, write, or count."

Kearns's observation is borne out by the experience of Easco Hand Tools of Springfield, Massachusetts. Easco, threatened by foreign competition, saw that its survival depended on lower prices and improved product quality. The firm's strategy was to improve its technological and production methods. But when it analyzed its work force's ability to incorporate the anticipated changes, Easco discovered that many workers simply were not capable of being retrained to work with the new technological and production methods.

Sixty-five percent of Easco Hand Tool's work force had not completed high school and 35 percent hadn't finished ninth grade. One in five of its employees was functionally illiterate and lacked the basic skills necessary to operate its existing level of technology. Easco's survival demanded that management be flexible enough to make the needed changes, but more than 700 employees could not adapt and were let go. The workers who remained were given training assistance.

The Easco story illustrates a problem that American businesses and their workers will find more common in the decade ahead. The changing technology and competitive pressure businesses are dealing with require higher levels of skill from American workers. *Workforce 2000* noted that when jobs are given a numerical rating according to the math, language, and reasoning skills they require, only 27 percent of all new jobs fall into the two lowest skill categories; 40 percent of the current jobs do. By contrast, 41 percent of new jobs are ranked in the three highest skill groups; only 24 percent of current jobs fall in the same categories. The job market in the year 2000 might favor the sellers, but because there will fewer low-skill jobs, the market will favor only those who have developed the necessary abilities or show the capacity to learn them.

The problem for workers is that there won't be jobs for them in the new economy unless they have the requisite job skills; the challenge for business is to ensure that it has

enough skilled workers to compete. The dilemma for the American economy in the 1990s is to find a training and educational solution that will take care of both problems.

The changes in the nation's demography and economy during the 1990s present both a great risk and a great opportunity for the disadvantaged people the economy has historically ignored. With fewer new young workers entering the work force, employers will be hungry for qualified people and more willing to offer them jobs and training. As the *Wall Street Journal* recently pointed out, "The work force shortages of the 1990s may accomplish what the activism of the 1980s couldn't." But while the students in the class of 2000 who get good training will find their job prospects improving, those the same age who drop out or who have language, math, work readiness, or cultural problems will find that the job market won't have a place for them.

The American Education and Training Crisis

The problem is not that businesses are failing to adapt; they're moving quickly to adjust to changes in the marketplace. The problem is that American education has to catch up. Chemical Bank in New York, for example, gives its prospective tellers a basic math test. The percentage of applicants passing the test dropped from 70 percent in 1983 to 55 percent in 1987. In Massachusetts, a state-sponsored job program reported that the average reading ability of participants fell in the last five years from the ninth grade level to the fourth grade level as the local job market tightened.

According to *Training* magazine senior editor Ron Zemke, 27 million Americans now are functionally illiterate. They are unable to read, write, calculate, or solve problems at a level that enables them to cope with even the simplest technical tasks. Half of our nation's industrial workers read at or below the eighth-grade level, and each year another 2.3 million functional illiterates who are 16 or older join the nation's employment pool.

The U.S. Department of Education estimates that the functionally illiterate now account for 30 percent of unskilled workers, 29 percent of semiskilled, and 11 percent of all managerial, professional, and technical employees. With this number of people at such a low level of basic skills, how can businesses make the critical adaptations that the new economy will force on them in the coming years?

Historically America has had no problem educating its most talented and fortunate young people. As *Workplace Basics: The Skills Employers Need*, a joint study conducted by the American Society for Training and Development and the U.S. Department of Labor, points out, Americans, like the French, have invested heavily in the formal education and work place learning of white-collar and higher-level technical elites, but have paid much less attention to noncollege skill and craft workers. Americans have educated their brightest students for roles in what was a mass-production based economy. American elementary and secondary schools have done an effective job of providing academic preparation for the college-bound, but have been less effective at educating and training noncollege-oriented youth. For those students, the educational system didn't offer enough applied learning, and what was provided is, on average, not very good.

In contrast, West Germany relies more on its craft and skill employees for technical direction and innovation, and its organizational structures have fewer layers of managerial and white-collar personnel than those of either France or the United States. In Germany, there is a complex, three-track educational system, and only one track is reserved for those students who are qualified for and want careers as doctors, lawyers, academics, or scientific researchers. The majority of students are educated in a strong vocational training and apprenticeship system designed for more practical careers—from machinist to social worker. This two-track system provides basic academic training in history, literature, and math, as well as rigorous applied training and testing in the skill areas required for the careers they have chosen. There is no stigma attached to learning in a vocational track, nor is it a path for the less capable.

The American focus on educating the academically brightest students worked well when the economy was centered in manufacturing and when the competitive edge went to those companies that created high-volume economies of scale. In such a system, "a few people at the top made all the decisions," relates Harvard economist Robert Reich in a recent article in the *National Education Association* magazine. "They designed the system and planned all the standard operating procedures by which it would run." Everyone else followed orders. The very rigidity and clarity of the system was its strength. Innovations, when they came, were disruptive and costly, and when they came too frequently, changes made it difficult to achieve the economies of scale necessary to pay for them and still make a profit.

Passive Cogs?

But in the current economy, the companies that are technologically innovative and have the ability to respond quickly to the ever-changing tastes of the market have the

competitive edge. "Americans must now compete on the basis of how quickly and how well they can transform ideas into incrementally better goods and services," Reich explains. "American management now understands that in this new environment it can make good decisions only with the input of the employees who are in direct contact with suppliers, production processes, and customers." Employers need the same well-trained, innovative workers that the German system produces.

American businesses realize that they can no longer compete if their workers function simply as passive cogs in a well-oiled machine. The work place is becoming decentralized, and the autonomy and value of employees at the point of production and service delivery has increased dramatically. At all organizational levels, the roles of personnel are expanding, and with those broader roles comes a greater opportunity to have a positive or negative effect on the efficiency, quality, and innovation of the company.

Take, for example, the bank teller. In the past, the bank teller's primary role was as a processor, performing a limited number of repetitive tasks involving monetary transactions. But because of the competitive pressures to satisfy customers' one-stop banking needs, the role of teller has evolved to include the responsibilities of a financial services portfolio consultant. The teller now has access to information previously available only to midlevel managers, and he or she is empowered to advise customers on a variety of services and options.

The experience of the bank teller also holds true for dozens of other jobs: routine training is no longer sufficient. Employers now need workers who can take on more problem-solving and decision-making responsibility. They need workers who can provide their customers with sharp, knowledgeable, and courteous service. But as U.S. Bank's Bob Kakiuchi points out, "There simply isn't an abundant supply of entry-level people—trained or untrained—who have the basic interpersonal skills we need for the customer service positions we have to fill."

The American educational system is failing too many of its young people. There is a need for graduates with basic skills, but the system is not delivering. As Xerox's Kearns says, "The simple truth is that we can't have a world-class economy without a world-class work force, from senior scientists to stockroom clerks. And we cannot have a world-class work force without world-class schools."

What Can Be Done?

The crisis in our schools is also a crisis for business and the American economy. Some employers faced with labor shortages have tried resolving their long-term training problems by looking for short-term solutions to their labor needs. The ones who can afford it have tried to buy their share of the limited pool of available skilled workers with higher wages and attractive perks. Others have automated their operations to a greater degree than they might have otherwise done. But these measures will not solve the labor-shortage problems most businesses face, and the economy as a whole needs to develop a comprehensive approach to the crisis.

Most employers realize that the deeper, long-term solution lies only in creating programs that radically improve the education and training that workers receive. Yet most businesses don't have a grand plan. Because the problem is so new, Pacific Northwest companies like Boeing, John Fluke, Seafirst Bank, Eldec, and U.S. Bank are experimenting. They're doing more in-house training in the basic skills and becoming more intimately involved with shaping and financing the educational programs of outside learning institutions.

Business is getting more involved in the business of education. Corporations currently spend $30 billion a year on formal or structured training programs and $90 billion to $180 billion for informal training, according to Anthony Carnevale and Leila Gainer, the authors of *The Learning Enterprise*, another American Society for Training and Development and Department of Labor joint study. While this total represents an average of 1.4 percent of the national payroll, many of the major firms in the United States spend 2 percent, and companies that are committed to substantial investments in training and development spend 4 percent of their payrolls. Carnevale and Gainer argue that the annual dollar amount American business spends on formal training should total $88 billion. This would increase the yearly percentage of workers who receive training from the current level of 10 percent to 30 percent.

But businesses pay taxes, and they are reluctant to do the educational work they think their tax money should deliver. What employers want most are employees who can learn the particular skills of an available job. As *Workplace Basics* states, corporations want employees "who have learned how to learn," and they want their prospective workers to acquire this fundamental skill in school.

Boeing's Carver Gayton agrees. He believes that our public schools should avoid developing a skills curriculum based on projections about the jobs that are likely to be present when today's youngsters graduate. Things are changing too rapidly and such skills will more than likely be obsolete by the time the class of 2000 enters the job market. The focus should instead be on developing basic core competencies, such as reading,

writing, math, problem solving, and computer skills. "But above all," says Gayton, "schools must be flexible enough to move as the technology changes."

To get what they need from outside educational institutions, businesses are developing partnership strategies with educators. Bob Kakiuchi states that U.S. Bank has a policy of establishing "relationships with community minority programs designed to train people in salable skills. We let them know what we're looking for so that the educators can incorporate those things into their programs, and we're looking into developing an internship program so that students can get hands-on experience."

Carver Gayton says that Boeing develops partnerships in each of the communities throughout the United States where the company has a presence. Boeing appoints "education managers" to work with school districts and area chambers of commerce. "We have scientists and engineers go in and talk with students," he explains. "We'll have students come to our facilities. We'll hire teachers during the summer so they can get a better sense of what the reality base is for the subjects they teach in the fall."

These partnerships have been an important element in breaking down the antagonism that often exists between educators and business people. "Dialogue helps both sides overcome their wariness," Gayton says. "Educators are often critical of business, and business people tend to think that everything is fouled up in the schools and that educators don't know how to solve their own problems. They all learn how to be a little more sympathetic."

Companies and schools all over the country are participating in a variety of new cooperative programs (see sidebar). But one Pacific Northwest program, Portland Investment, stands out as a product of the coordinated effort of a group of business, political, education, labor, and social service leaders in Portland, Oregon. The group, called the Leaders Roundtable, is modifing existing youth programs and integrating them into a comprehensive continuum of programs to bring disadvantaged youth into the city's mainstream. The goal of the Portland Investment is to work with young people from infancy to adulthood to reduce the number of school dropouts, to enhance their basic skills, and to increase their access to good jobs.

The program provides eligible youths with counseling, training, and work opportunities. As they move through the program, they obtain increasingly responsible jobs. By the time they graduate from high school, they're ready for primary labor market jobs, and the businesses that participate in the Leaders Roundtable guarantee that those jobs will be available.

"When we talk about businesses being involved with youth unemployment," says Roger Breezley, the chairman and CEO of U.S. Bancorp and one of the chief movers behind the Leaders Roundtable, "we aren't just after dollars of business support. We aren't just after people who will act as mentors or as speakers or as trainers. We're also after business to provide job opportunities for youth. It's one thing to keep them in school and provide them with a more work-oriented curriculum; we also have to give them on-the-job experience."

Innovation and Cooperation

Fifteen electronics firms in the Puget Sound area have pooled their resources to create the Applied Technology Training Center, located near the John Fluke Manufacturing campus in Everett. Although the ATTC functions as a branch of Edmonds Community College, the 15 companies funded its construction and supply paid faculty from their staffs. Officers from each company sit on the board of directors, and they set the curriculum.

U.S. West recently announced a dramatic $20 million educational initiatives program that covers the educational spectrum from kindergarten through college, with a special emphasis on developing stronger math skills. The firm has distributed $3 million to programs in public and private education to support innovative approaches to educational excellence.

Partners in Public Education (PIPE) is a program developed by the Seattle Chamber of Commerce, which has linked more than 120 businesses in partnership with Seattle's public schools and community colleges. These businesses and schools devise specialized programs within PIPE guidelines to help and motivate students to improve academic achievement, to prepare for the work world, and to become responsible, active citizens.

Prince George County in Maryland provides "student warranties." While implicitly an admission that the high school diploma guarantees employers very little with respect to the employability of students, the program, developed by business leaders and educators, guarantees employers that students are proficient in certain skills. If employers find that any of the "warranted" students cannot demonstrate these skills, they send them back to school to be retrained at no cost to the employer.

The Reality of Demographics

Are programs like Portland Investment reaching enough young people to solve the labor problem by the year 2000? Probably not. Even the best programs are grappling with excessive dropout rates, achievement scores that are barely rising to levels common 20 years ago, and the social problems caused by drugs and broken families. But the reality of America's demographics and its economy is such that for business, as Carver Gayton says, "It's not just a question of social commitment. It's a question of essential human resource needs."

Businesses are concerned with their own success, but, in the next decade, the self-interest of business and the social needs of the poorly educated—the disadvantaged people the economy has traditionally ignored—will coincide. This is an unusual opportunity. We know that American education has to deliver better skills development than it's now offering. Training in the basic core competencies must become more rigorous, and a stronger, better financed applied learning system, perhaps like that of West Germany, must be implemented. And the rigor of the training American schools provide should be accompanied by a motivational message from the business community to the class of 2000: "We need you. We have good jobs waiting for you. It will be worth your while to work hard. We'll help you in any way we can."

Jack Whelan is a lecturer in business communications at the University of Washington and a free-lance writer.

Gallery

PHOTO COURTESY OF THE EDDIE BAUER ARCHIVES

Mrs. Eddie Bauer (right) was the fashionable Washington State Women's Skeet Shooting Champion in the late 1920s.

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Graduate School of Business

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The North Pacific: Too Many Fishermen, Too Few Fish

REGIONWATCH

- From Recession to Expansion—A Review of the 1980s
- Employment, Hours, and Earnings Indicators
- The Role of Import Substitution in Economic Development

Crisis Management: How the Alar Scare Shook the Apple Industry

Corporate Liability and Reproductive Risk

Commentary

Crisis Management: Today's Version of the Red Death

Like Poe's Prince Prospero, who locked himself up in an abbey to escape the Red Death, contemporary managers sometimes pretend to see only simple prescriptive rules or sophisticated analytic techniques in a competitive environment where uncertainty has become the norm and time is measured in nanoseconds. In this dynamic environment, each firm's actions produce greater and unexpected reactions, and managers are required to anticipate and react to an increasingly bewildering array of competitive pressures and public expectations.

Three of the articles in this issue of the *Pacific Northwest Executive* illustrate the extent to which "crisis management" characterizes today's version of the Red Death. In her article on Alaskan fisheries, for example, Karen Franklin shows how a well-intentioned piece of protectionist legislation resulted in the overproduction of fishing boats and set up an unmanageable conservation governing process. Supply conditions now threaten to destroy the very industry that the original legislation was supposed to save.

Phillip Phan and Raymond Chong illustrate how a well-meaning government tax break encouraged investors to extend their apple orchard acreage. As managers struggled to sell a bumper apple crop, the mere inquiry into the safety of Alar, a growth enhancer used on a small portion of the harvest, was enough to create a supply crisis. Faced with a small drop in consumer demand, the industry suddenly found itself fighting a severe financial crisis.

Finally, Donna Randall tells us how corporate America's search for ways to reduce the threat of reproductive risk in women actually pushed a number of female employees into having themselves sterilized so that they could keep their jobs. Managers found that their efforts to avoid litigation for hazards to the unborn have brought them into court on charges of sex discrimination.

We tend to view product tampering, oil spills, terrorist bombings, chemical leaks, employee deaths, and scandals involving bribes to government purchasing agents as classic cases of industrial crisis. As the articles in this issue confirm, however, crisis management has become part of the operating domain of all firms.

Business historian Thomas Cochran points out that business practices merely reflect society and culture. In this respect, the increasing interrelatedness of business means that we all share in the downside effects of executive decision-making. Crisis response, then, takes on added importance, and we are faced with the task of deciding how managers learn to deal with crisis and how we design organizations to facilitate the process.

In broad terms, this means that the "coping organization"—the firm that looks into its inventory of historically institutionalized responses and throws one at the current problem—has to be replaced with the "learning organization." The learning organization, like a medical doctor, experiments. The medicine prescribed represents a best guess, which is quickly abandoned if it fails to achieve a cure. The failure of one prescription actually paves the way for a more appropriate one.

The learning organization requires a cadre of managers capable of operating in this environment. Their production relates to both the content and the mode of education in universities and professional schools of business. In the classroom, I often hear a student say, "Why don't you just give us the answer?" Isn't it obvious? We're trying to prepare young men and women for the learning organizations of the 21st century. One of education's roles is the production of a managerial class that puts a high emphasis on thought, problem identification, systematic analysis, breadth of evaluation, and the development of novel solutions. This is not some new concept about the value of intuitive and creative management; Einstein considered intuition the most important and valuable factor in discovery.

Why is it, then, you may well ask, that our organizations, which are peopled by all the bright, intuitive, and creative individuals turned out by universities, are so inept at crisis management? By and large, the answer relates to organizational design and the kinds of operating cultures produced by that design. The most exciting managerial experience for many executives was their seventh grade newspaper route. That may have been their last opportunity for any degree of autonomy and independent management. For many managers, "challenge" relates more to how many miles they can jog than to how they can enhance the organization they work for. Reluctant entrepreneurs often report that they begged their previous firms to develop new products, but were forced to start their own firms to follow through with their ideas. The learning organization has to challenge all its managers and get them back into the operating loop.

A recent television ad for oil filters warns that "you can pay me now or you can pay me later." This same prophecy applies to crisis management. A firm can adapt to deal with crisis, or crisis will surely force the firm—at a heavy price—to adapt in ways that serve the long-term interests of the organization, its employees, and society as a whole. Thus, the Alaskan fishing industry *will* evolve and change, the Washington apple industry *will* have a shake out, and companies *will* find more sensible and sensitive ways to deal with reproductive risk. The Large Locomotive of Bureaucracy will pull off onto a side track and make way for the Little Engine That Could.

Dealing with crisis requires an organizational design and culture that encourages managers who "think they can." Ultimately, firms have to deal with crisis as *crisis*, not as some glorified operational problem that requires ritual responses. And society has to recognize that PR hype and public indignation don't improve the quality of managerial decisions. We can't hide out in the abbey. We are all crisis managers in our own realms.

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JONATHAN COMBS

ALASKAN FISHERIES

THE BATTLE BETWEEN CONSERVATION AND RESOURCE ALLOCATION

by Karen Franklin

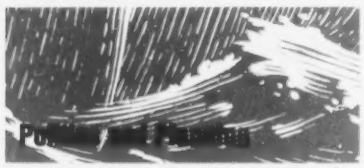
In 1973 foreign fishermen reaped 70 percent of the commercial catch off American shores and, in the process, overharvested 16 species. In 1976 a coalition of aggressive congressmen pushed through legislation that would end foreign domination and energize the U.S. fishing industry. The Magnuson Fishery Conservation and Management Act (MFCMA) set aside a 200-mile offshore zone for American fishermen and enacted a number of conservation and management schemes to prevent overfishing. As a result, the once-beleaguered domestic fishing industry reclaimed the harvest from foreign control and generated a multi-billion-dollar enterprise. By 1990, 14 years later, the Magnuson Act was declared a triumph.

But the new law transformed the U.S. fishing industry so rapidly that its conservation objective has not kept pace with the dramatic growth in capital investments. Nowhere have the effects of intensive investment in the industry—and the accompanying growing pains—been felt more acutely than in the North Pacific groundfish and crab industries.

In the past five years, since the Magnuson Act made a clean sweep of foreign-flagged vessels, a new class of boats and at-sea processors, worth more than $1 billion, has crowded into the Bering Sea and the Gulf of Alaska. Overcapitalization has led to ferocious infighting among American trawlers, crabbers, shore-based processors, and floating factories over the finite harvestable stock. Parochial struggles between these ballooning user groups over ever-shrinking slices of the fisheries pie have become the most pressing management issue within the industry.

Caught up in ongoing resource allocation battles, fisheries managers are hard pressed, in spite of their best efforts, to fulfill the conservation motives of the law. King crab has not recovered from its near-depletion in the early 1980s, and pollock stocks have declined. Some species of seabirds and marine mammals have shown signs of reproductive problems, which could indi-

cate stress in the groundfish stock, their primary food source. Intensive, unregulated pollock fishing in the Bering Sea beyond the 200-mile limit, in an area known as the "doughnut hole," has aggravated management problems for the fishery in the adjacent U.S. zone.



To stave off the eventual demise of the domestic fishing industry, the Magnuson Act established eight regional fisheries management councils and charged them with the task of averting the decline of marine resources. The law instructed the councils to devise fishery management plans (FMPs) for the species that are deemed at risk. These plans, like all resource management schemes, mix science with politics to reach a consensus among competing, and often conflicting, demands. The plans aim to allocate fish resources to all sectors of the industry, while preventing overfishing and conserving the stock for perpetuity. They seek to satisfy the economic needs of fishermen and processors, while simultaneously protecting the interests of consumers. Allocation decisions are based on biological information, but also factor social circumstances—as determined by the councils—into the final equation. Within this fractious kaleidoscope of objectives, the FMPs dictate how many fish per species can be caught each year, at what intervals, by which gear groups, and in which fishing grounds.

Since the massive influx of investment in North Pacific operations, fisheries management has become laden with conflict. There is constant tension between short-term market demands and long-term conservation goals. Local problems are pitted against national interests. Scientists report their stock assessments to the North Pacific Fisheries Management Council, and then politics and economics step in to play a critical role in the formulation of management priorities.

Theoretically, management planning is an open, democratic procedure. The councils solicit public testimony and written commentary on planning proposals at specific stages during the months-long process. After a council adopts a plan, the U.S. Secretary of Commerce must approve it, a measure meant to ensure that the FMP serves the interests of not just fishermen, but the nation as a whole.

In spite of the democratic nature of the planning process, the panels' ability to regulate fairly has been questioned. In an effort to weight the councils with expert knowledge, Congress purposely stacked them with active participants in the fishing business. On the North Pacific Council, for example seven out of the 11 members represent the seafood industry. (The four other voting members represent the state and federal governments.) Most of the decision-making power ultimately belongs to the council; although the Secretary of Commerce can overrule any council decision, the federal government has typically deferred to the panel's expertise and wisdom.

"The councils are made up of the people who are being regulated. Clearly they're interested in their own financial gain," said law professor William Burke of the University of Washington, a specialist in international maritime law. "It's an impossible situation. They have complete, absolute freedom to do anything they please, and that's what they do."

It should come as no surprise that the inbred nature of the council has resulted in charges of self-interest. Greenpeace, one of several environmental groups that has recently stepped up activity in the fisheries management arena, has proposed adding a conservationist to the panel to focus extra attention on ecological concerns. "The council is not an environmental forum for the sake of the environment," noted Alan Reichman, Greenpeace's North Pacific Ocean ecology coordinator. "When the council members make conservation-oriented decisions, it's because that's what's best for their sector of the industry. They're driven by their bottom line."

Industry representatives on the councils understandably look after the interests they represent, yet their management plans must abide by a number of national standards, as outlined in the law, that focus on resource conservation, scientific analysis, fairness, and efficiency. The Magnuson Act, for example, states that "conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the U.S. fishing industry."

Still, the concept of *optimum yield* has generated controversy throughout the North Pacific Council's history. A ceiling on the total catch, the optimum yield theoretically reflects the biological, economic, and social ramifications of harvesting each fish species. But the standard is nonspecific and offers no criteria that can be used to balance those factors. It's entirely up to the council to weigh ecological considerations against the needs of the commercial and sportfishing sectors. And no one outside the council knows quite how the figure is calculated.

"I have no idea how they come up with it," said Associate Professor Daniel Huppert of the University of Washington's Institute for Marine Studies. "There doesn't seem to be a specific reasoning for it based on biological, social, and economic factors." "It's an arbitrary cap. There wasn't a nicely laid out process to come up with it," agreed Donald Bevin, professor emeritus and former dean of the University of Washington's School of Fisheries and a past member of two North Pacific Council advisory committees.

Years ago the North Pacific Council limited the optimum yield in the Bering Sea to approximately 2 million metric tons and to 1 million metric tons in the Gulf of Alaska. Beneath those ceilings, the council each year establishes quotas for crab, pollock, blackcod, and other commercial species based on stock assessments and other data provided by fisheries biologists.

Using the scientific information as its base, the council then adds the social and economic ingredients—often provided haphazardly through the public comments of vested interest groups—and raises or lowers the quota accordingly. The final product is known as the total allowable catch (TAC) for each species. Added together, the TACs are not supposed to exceed the optimum yield cap. The council always has the option of lifting that ceiling to accommodate voluminous TACs, but so far the regulators have bucked considerable pressure to do so. In fact, the North Pacific Council has a reputation for establishing conservative quotas, in spite of the intense lobbying efforts by various industry sectors to raise allocation levels.

"There's always tension between short-term and long-term gain," Huppert com-

mented. "The battle is whether we want to take it all now and get the money today or preserve the stocks for the long term. The balance can swing one way or the other with every management plan, but in Alaska they've done a very conservative job. They've leaned toward being long-term thinkers."

The North Pacific Council contends that, in keeping with the intent of the Magnuson Act, conservation drives its management decisions. "Conservation is the council's number one priority, for the benefit of the U.S. and the fishing industry as a whole," noted Steve Davis, the deputy director of the North Pacific Council. Many of the council's actions support his claim. The panel's refusal to raise the optimum yield is a case in point, and there are others.

But the line between resource allocation and conservation is not easily drawn. "All too often, management decisions have been driven by the demands of industry for economic development opportunities," said Arni Thomson, the executive director of the Alaska Crab Coalition, in congressional testimony. "Federal managers have frequently favored economic expediency over environmental responsibility. They have wrongly chosen to regard resource conservation as economic allocation."

The reality of the situation is that the North Pacific Council's activities reach far beyond problems of species conservation; the regulators have also involved themselves directly in shaping the market environment. Economic and political demands do in fact play a determining role in formulating the council's agenda.

In a heated allocation dispute currently raging in the North Pacific pollock fishery, for example, Alaska-based shoreside processors have squared off against the factory trawler fleet from Washington and Oregon for their share of the allowable take. The council is considering proposals that would give an allocation preference to the shore-based plants, a notion that the offshore catcher-processors oppose, for obvious reasons. "It's got the at-sea processors, who have a billion dollars invested, a little worried," said Bruce Buls, public relations director for the Alaska Factory Trawlers Association (AFTA).

AFTA officials have called into question the appropriateness of the council's involvement in such micromanagement issues. The shoreside versus offshore allocation debate bears little relationship to the council's primary job of preventing overfishing; the preset total allowable catch for pollock presumably solves that problem. Neither does the allocation issue address the health of the U.S. fishing industry. According to a recent study conducted by Natural Resources Consultants of Seattle, 85 percent of the shore-based processing activity takes place in foreign-owned plants, while 50 percent of at-sea production occurs on foreign factory trawlers. The Alaska Factory Trawlers Association argues that catcher-processors not only pump more money into the U.S. treasury than do shoreside plants, they also benefit the balance of trade.

Yet onshore processors clearly provide the economic base for many fishing-dependent Alaska towns. "Shore-based processors and their catcher boats live in daily fear that the product on which they are counting for the year's production will be taken virtually overnight by an influx of factory trawlers. This mobile fleet is capable of moving into an area and, in a short time, harvesting the entire quota," stated Chris Blackburn, the director of the Kodiak-based Alaska Groundfish Data Bank. "It's like living with the sharks," she told a House Merchant Marine and Fisheries subcommittee last summer.

By AFTA's reasoning, the council should concern itself solely with the interests of the country, rather than local political squabbles. As it happens, Alaska industry representatives on the North Pacific Council outnumber those from Washington and Oregon by a five to two margin. This apportionment of seats, Bruce Buls argued, could sway management priorities to favor onshore processing plants. The council's involvement in the issue, he contends, hints of self-interest.

"We say [to the council], 'What's the management problem you're trying to solve?' We're saying it's 100 percent a political problem, not a management problem. The Magnuson Act does not allow them to manage fisheries politically," Buls said. He argued that onshore processors don't need a special provision to enter the pollock market.

One of the national standards prescribed by the act addresses the issue of local politics directly: "Conservation and management measures shall not discriminate between residents of different states." But the matter isn't as simple as it appears; the legislation adds that "allocation shall be carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges." Whether the out-of-state factory trawler fleet qualifies as an "other entity" in the eyes of the council remains to be seen, but there is no dispute that these catcher-processors have now cornered the pollock market.

To protect the factory trawler sector's investment, the Alaska Factory Trawlers Association has asked Congress to reallocate state representation on the council. "It's essential that we have a voice," said Vincent Curry, the association's director of government affairs. "We're clearly underrepresented. From the standpoint of basic fairness, that should not be allowed to continue."

In defense of the North Pacific Council, deputy director Steve Davis explained, the members not only have a right to referee the contest, but a duty to do so—even if resource conservation isn't at issue. The law requires council members to consider the social consequences of fisheries management. "The council is delegated the authority by the Magnuson Act to manage the fisheries in a way that benefits the nation," he said. "We're looking at socioeconomics here. When jobs are lost, it raises a lot of eyebrows in Washington, D.C." The council considered public comments on the issue last fall and is currently drafting management alternatives.

As the onshore-offshore debate demonstrates, virtually any management scheme could be couched in terms of social need, particularly if jobs and money are involved. The political pressure to redistribute the pollock harvest is enormous, and the council, despite lingering doubts about just what role the members should play, has reacted accordingly. Alaska Senator Ted Stevens has also heard the pleas of his constituents loud and clear. He has responded by introducing a bill that would reserve more than 40 percent of Gulf of Alaska pollock for the shoreside processors. "Management is not run by the Magnuson Act; management is run by politics," observed law professor William Burke. "The fishing groups get around [the act] by going to their congressmen. The Magnuson Act has very little to do with it."

Interests of the Nation: Lost in the Shuffle

In an environment of political two-stepping, major issues involving the public good can easily go unnoticed in day-to-day fisheries management. Consumer interests, for example, carry little weight in the formation of North Pacific management priorities, although American buyers comprise a part of the council's constituency. Only recently has the council's advisory panel, primarily occupied by fishing interests, provided a seat for a consumer representative.

"American consumers and taxpayers have been the real fall people," Burke said. Artificially low quotas and short harvest seasons increase the prices consumers pay at the market and affect the quality of the fish they buy.

But the Magnuson Act gives the councils virtually no instruction on how they should serve the public; the law leaves such matters entirely to the discretion of the regulators. "No one is defining what the best interests of the country are," stated Donald Bevin, the former UW dean. "Fishermen do have special interests, and you can bet their interests will be served first. That's how the councils were set up."

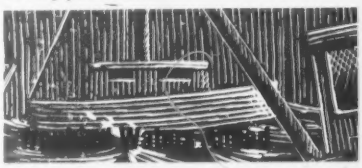
Northwest fishermen aren't the only ones trying to influence the council's priorities. Foreign interests still have a great impact on fisheries management in the North Pacific —despite the successful "Americanization" process. The law allows foreign-flagged vessels to take any surplus of the quota left by Americans within the 200-mile limit. Foreign interests have led the fight to raise the optimum yield cap so that their vessels can get access to a surplus, which currently does not exist. Not only are the vast majority of processing plants foreign-owned, many American-flagged vessels are actually backed by foreign investors. Fisheries managers don't know the precise number, but the General Accounting Office, Congress's investigative agency, recently began an inquiry to find out. These foreign participants, usually fronted by American attorneys, actively lobby the North Pacific Council during management deliberations.

Environmental concerns, too, have now reached the top of the public agenda, and the councils will undoubtedly be held accountable for any impact the fishing industry has on the ecosystem. When the Magnuson Act came up for reauthorization last year—on the heels of the disastrous oil spill in Prince William Sound—national environmental groups, such as Greenpeace, the National Wildlife Federation, and Friends of the Earth, stepped forward to voice their concerns. These groups are pushing for greater attention to ecology—habitat conservation, marine mammal protection, and a clearer distinction between fisheries conservation and allocation. Members of the fishing industry agree with many of the environmentalists' concerns. Commercial crabbers, for example, have complained bitterly about the by-catch trapped in groundfish trawler gear. The giant nets, "the width of one football field, the length of three football fields," scrape across the ocean floor, killing everything in their path, said Arni Thomson, the Alaska Crab Coalition's executive director.

"Bottom-dwelling crab and halibut and their sensitive habitat are severely punished by the gear," he stated. In a presentation before the House fisheries subcommittee last summer, Thomson said, "As has been the case the past two years, we have been closed down for conservation at 50 percent of our quota. However, the factory trawlers keep right on scooping them up by the millions, in the crab zone that we have been shut out of. They are doing [it] right now, with no observers."

Environmentalists, fishermen, and council members all agree that scientific observers are badly needed to monitor by-catch problems and to improve the quality of data provided to the councils. The pace of research on North Pacific fisheries, though hailed as equal to the best in the world, has dwindled to a dangerously low level. Budget cuts have reduced the activity of biologists from the National Oceanic and Atmospheric Administration and the Alaska Department of Fish and Game. But perhaps even more important, when the foreign vessels exited U.S. waters, they took away the scientific observers who recorded biological information from the catch—a crucial source of data.

Virtually all the parties concerned about fisheries management—from the United Fishermen of Alaska to Greenpeace to the North Pacific Council—have asked Congress to reinstate an observer program. "[An] issue of paramount importance to the North Pacific Council is the growing lack of information on which to base sound management decisions," council chairman John G. Peterson told Congress during last year's hearings. "This past January [1988] the North Pacific Council went on record declaring that the lack of observer data for domestic fisheries was preventing the council from meeting its obligations under the Magnuson Act." Alaska Congressman Don Young has introduced a bill that would authorize the management councils to impose user fees, which could pay for an observer program, on fishermen. Although it has no authority to impose fees, the North Pacific Council has required 100 percent observer coverage on the trawler fleet beginning this year and has ordered commercial operators to figure out a way to pay for it. In response, the Magnuson Act reauthorization bills in the House and Senate, which are still pending at this time, both include cost-recovery provisions.



As Alaska's groundfish industry continues to expand, high-pitched battles over resource allocation are expected to worsen. "If you think we're dealing with allocation conflicts now, just wait until the additional 35 factory trawlers in the pipeline set sail," said Greenpeace's Alan Reichman. "This massive overcapitalization is going to cause increased economic and political pressure to lift the quotas above sustainable levels."

The North Pacific Council recognizes the overutilization problem and has focused its attention on proposals to limit new entry into the blackcod fishery, which will be followed by restrictions for halibut, groundfish (including pollock), and crab. But limiting entrance into the fleet fails to solve the current problem of overcrowding under present allocation levels. "Everyone expects the factory trawler business to go bust in two or three years," noted William Burke, the UW law professor.

"Something has to give," Alan Reichman agreed. "There's been such poor planning in this industry, there's going to be a shakeout. Either the environment or the economy —or both—will suffer."

Karen Franklin is a free-lance writer who specializes in natural resource and environmental issues.

REGION WATCH

Economic Developments in the Pacific Northwest

Puget Sound Business Conditions Survey

The Puget Sound, one of the fastest growing regions in the nation, showed no sign of an economic slowdown in 1989, although regional firms are now more cautious in their outlook for 1990. Whereas 1989 was a year characterized by expanded output and dramatic sales and employment increases, the coming year will bring fewer new hires and a modest decrease in after-tax profit growth.

These are the results of the *Pacific Northwest Executive*'s latest survey of senior executives and business owners in the Puget Sound region. The survey—which is conducted in collaboration with the Greater Seattle Chamber of Commerce and the Seattle Economists Club—is designed to determine current business conditions and future expectations. The sample frame consists of all private sector establishments that employ 250 or more workers in King, Pierce, and Snohomish counties, plus a random selection of smaller firms.

The questionnaire was sent to 514 businesses in January. Usable responses were received from 163 (79 large and 84 small) firms, for an overall response rate of 32 percent. Collectively, these businesses employ 84,069 workers—about 9 percent of the private nonfarm work force in the three-county area. The distribution of respondents by size, location, and industry is very close to that of the sample frame (Table 1).

According to survey returns, which are weighted by employment, 94 percent of Puget Sound companies recorded sales increases of 2.5 percent to more than 10 percent during 1989 (Table 2). Wages, other

Table 1: Sample Characteristics of the Puget Sound Business Conditions Survey

	PERCENT OF SAMPLE FRAME	PERCENT OF RESPONDENTS
Large firms	43	49
Small firms	57	51
King County	71	79
Pierce County	20	14
Snohomish County	9	7
Services	70	74
Goods	30	26
TOTAL	514	163
Response rate equals 32%		

Table 2: Survey Results, January 1990
weighted percent of 163 respondents

	MUCH LOWER < −10%	LOWER −10% TO −2.5%	NO CHANGE −2.5% TO 2.5%	HIGHER 2.5% TO 10%	MUCH HIGHER >10%
SALES					
Last 12 months	1	2	3	57	37
Next 12 months	2	3	20	53	23
PRICES					
Last 12 months	1	4	33	60	3
Next 12 months	1	1	46	52	1
COSTS					
Last 12 months	0	1	21	75	4
Next 12 months	0	1	22	71	6
NET AFTER TAX PROFIT					
Last 12 months	4	11	15	32	37
Next 12 months	1	20	22	40	17
WAGES					
Last 12 months	0	0	16	81	3
Next 12 months	0	0	8	89	3
INVENTORIES					
Last 12 months	1	4	54	31	10
Next 12 months	1	9	74	14	2
CAPITAL EXPENDITURES					
Last 12 months	2	4	34	31	30
Next 12 months	1	4	37	25	34
EMPLOYMENT					
Last 12 months	1	2	54	32	12
Next 12 months	0	3	71	17	8

Table 3: *Pacific Northwest Executive* Economic Forecast Panel

[redacted]

Clarence H. Barnes, dean, School of Business Administration, Gonzaga University
Philip J. Bourque, professor, Graduate School of Business, University of Washington
Richard Conway, economist, Dick Conway Associates, Seattle
Susan Doolittle, economist, Port of Seattle
Lynn Michaelis, chief economist, Weyerhaeuser Company
Douglas H. Pederson, vice president, Security Pacific Bank
Chang Mook Sohn, chief economist, Economic and Revenue Forecast Council

[redacted]

William B. Conerly, vice president and economist, First Interstate Bank of Oregon
John W. Mitchell, senior vice president and economist, U.S. Bancorp
Ham Nguyen, Corporate Planning, Portland General Electric
Paul Warner, state economist, Executive Department, State of Oregon
W. Ed Whitelaw, professor, University of Oregon; president, ECO Northwest

[redacted]

Michael H. Ferguson, chief economist, Division of Financial Management, State of Idaho
Donald W. Holley, economist, Ore-Ida Foods Inc., Boise
Jack G. Peterson, economist and consultant, Eagle
Don Reading, economist, Ben Johnson Associates, Boise
Charles L. Skoro, associate professor, College of Business, Boise State University

costs, and prices charged, which rose sharply, were overshadowed by these impressive sales increases and gains in after-tax profits. In our January 1989 survey, business owners had, in fact, predicted that their net profits, which were relatively flat in 1988, would improve in 1989. Capital expenditures also continued at a high level; 61 percent of the respondents noted increases of more than 2.5 percent. Although 54 percent of the firms made no substantial employment changes last year, a sizable share did add new workers.

Although companies across the business spectrum shared in the expansion, firms in the goods-producing sectors (construction, manufacturing) registered the strongest growth in capital expenditures and employment additions. In this respect, the 1989 survey results contrast with those from our first survey, which indicated that service sector firms outperformed goods-producing firms in 1988.

The survey sample's outlook for 1990 is one of restrained optimism. Although the Puget Sound's economy will continue to outperform the sluggish national economy, business expectations point to a modest slowdown. Most business owners expect continued growth in sales and capital expenditures, but don't anticipate marked employment additions. Goods-producing firms, in particular, expect a substantial increase (the median response was 10 percent or higher) in capital expenditures for 1990. Nonwage costs, wages, and the prices charged by all companies are expected to continue their sharp rise, while net after-tax profits will moderate. Smaller firms were the most cautious in their outlook for the year and, although they anticipate increased sales, these firms also expect costs to rise faster than prices charged and a decrease in net after-tax profits. Smaller firms won't be making major capital expenditures or employment additions in 1990.

Because rapid growth has become a significant concern, we asked the survey participants about their plans to respond to the region's labor shortages and congestion. Twenty-eight percent of the firms (weighted by employment) indicated that they were stepping up their recruitment activities outside the region, 49 percent were willing to offer higher salaries, 40 percent would consider more flexible work schedules, 22 percent were willing to pay higher business taxes for needed transportation improvements, and 31 percent were considering nonurban locations for back office or manufacturing facilities.

With this issue of Regionwatch, we reintroduce our panel of 17 distinguished economists from Washington, Oregon, and Idaho (Table 3). These members are among the region's leading forecasters, and as a cross-section of business, government, and academia, their insights offer business planners and policymakers an additional source by which to gauge the Northwest's economy.

The Region

For 1990 and 1991, our forecast panel calls for continued, but modest, economic growth. Real gross national product in 1990 will grow at 1.9 percent and increase to 2.5 percent in 1991. The panelists also forecast a 4.2 percent increase in the Implicit Price Deflator for GNP in both years.

At the regional level, panel members predict that personal income and employment growth will slow. In fact, the forecast for employment growth indicates a rate below the pace of recent months, particularly for manufacturing in Washington and Oregon. The region's forest products sector—so dominant in Oregon—is expected to decline in capacity during the next few years, the result of timber supply shortages. With stumpage prices being bid up to record heights, Northwest mills that serve primarily domestic markets are at particular risk.

Table 4: Panel Forecasts
median annual percent changes

	NOMINAL PERSONAL INCOME	NON-AGRICULTURAL EMPLOYMENT	MANUFACTURING EMPLOYMENT
[redacted]			
1988 actual	7.8	4.6	6.3
1989 est.	9.6	4.4	3.6
1990	7.1	3.2	1.4
1991	6.7	2.0	0.5
[redacted]			
1988 actual	7.6	4.7	3.9
1989 est.	8.5	3.7	1.4
1990	6.8	1.8	0.0
1991	7.6	1.8	0.8
[redacted]			
1988 actual	6.6	4.6	7.6
1989 est.	10.0	4.9	2.9
1990	7.0	3.5	4.5
1991	6.4	4.0	5.5

Despite these developments in timber, the region's economy will continue to expand, buoyed by the momentum of 1988 and 1989. The median forecast for nominal personal income in Washington calls for an increase of 7.1 percent in 1990 and 6.7 percent in 1991, although the real rate projection, given the inflation forecast, is for 2.9 and 2.5 percent, respectively. Manufacturing job creation is expected to slow in Washington, largely because the aerospace industry will make only modest additions. Despite the fact that they're projecting weak employment gains for the next two years, Oregon's economists are calling for stronger income growth in 1991, with a real rate of 3.4 percent. In Idaho, our panelists predict slower personal income growth and robust employment growth, particularly in manufacturing. In aggregate, our forecast economists expect that the Pacific Northwest's economy will continue to outperform that of the nation.

The Pacific Northwest's Economic Performance: A Retrospective Look at the 1980s

The 1980s were a tumultuous decade for the Pacific Northwest's economy. During the first two years of the period, the region experienced its most severe recession in decades. Since that nadir, the economy rebounded, then began its second longest economic expansion on record. By the end of the decade, the Northwest's three states were among the nation's leaders in job growth. How did an area, slow and tardy in responding to the national expansion, become one of the healthiest economic regions in the United States? Can we, by examining the trends of the 1980s, predict how the regional economy will perform during the 1990s?

Documenting the Decade

While no state can remain immune to the turbulence of a national recession, the economies of some states are affected more harshly than others. The back-to-back recessions of 1980 and 1982 were longer in duration in the Pacific Northwest and more severe in the loss of employment and income than the national average. Real personal income in the three states decreased by 2 percent, compared with a slight real growth of 2 percent in the nation. Nonagricultural employment in the region fell by nearly 5 percent between 1980 and 1982, and unemployment rates climbed to 11 percent.

The regional economy's poor performance was due largely to the vulnerability of its basic industries to changes in interest rates and credit availability. The advent of double-digit interest rates during the early 1980s hampered new housing construction, and housing starts fell to about 50 percent of 1978's level of two million. The region's lumber and wood products industry, so closely tied to the national housing market, was severely depressed. Between 1980 and 1982, the industry's employment fell to 107,300 workers, a drop of nearly 20 percent.

Although the region's economy lagged behind that of the nation in terms of recovery, growth rates during the latter half of the decade exceeded the national average. Employment growth in the Pacific Northwest averaged more than 4 percent annually after 1985, compared with a rate of 2.8 percent for the nation. For the United States as a whole, employment within the durable manufacturing sectors stagnated; the region's durable manufacturing industry made an especially strong recovery—its annual growth rate totaled nearly 5 percent. In fact, durable manufacturing led all the region's other major sectors, including nonmanufacturing, in net job generation.

Despite these cyclical economic fluctuations, significant structural changes occurred in the Pacific Northwest in the last decade. Traditionally oriented toward natural resources, the region's economy demonstrated less reliance on agriculture, forest products, commercial fishing, and mining, and increased dependence on the high-technology, trade, and service sectors. The region was confronted by the same forces—abrupt changes in commodity prices, exchange rate fluctuations, and technological advancements—that have driven restructuring in other regions of the United States. During the 1980s, the continued gyrations in the price of oil, rising defense spending, the substitution of plastics for a growing number of metals, the increasingly widespread use of computers, crises in the agricultural sector, and increased competition from newly industrialized countries played a role in reshaping the Northwest's economy.

Structural economic change within the region created pockets of urban prosperity adjacent to rural areas that are still struggling with economic transition and, consequently, are lagging behind. By and large, the "other Northwest" is rural and resource-dependent, with limited economic development opportunities.

Personal Income Performance

The Pacific Northwest's prosperity at the close of the 1980s, while impressive, was overshadowed by the performance of the national economy. Although the region's rate of employment growth was above the national average during the last half of the decade, real personal income growth languished. Pacific Northwest per capita income fell from 4 percent above the national average in 1979 to 5 percent below in 1988. During the 1970s, the region consistently outpaced the nation in real personal income performance, growing 4.7 percent annually, compared with 3.3 percent for the nation. The tables were turned during the 1980s, when the Northwest's real growth in personal income lost significant ground. What accounted for this substantial shift in income performance?

Sources of personal income are generally grouped into three categories: earnings, including wages and salaries and proprietors' income; dividends, interest, and rents, which represent payments to the owners of capital; and transfer payments. In the Pacific Northwest, as in the nation, earnings account for more than 70 percent of total personal income. The remaining 30 percent is roughly split between property income and transfers. During the 1980s, national earnings grew more slowly than property income and transfers; in the Pacific Northwest states, earnings per capita grew even more slowly. Because earnings represent a much larger share of personal income than property income and transfer payments combined, the effect of changes in per capita earnings is the single most important factor in per capita income. Fluctuations in the growth of transfer payments and property income have had very little effect on overall income performance.

Earnings per capita depend not only on how much individual workers earn, but also on the number of workers compared with the total population. If a large portion of the

population is employed, earnings per capita —and generally per capita income—may be relatively high, even if earnings per worker are not. The portion of the population that works, in turn, depends on the percent of the population that is old enough to work, the percent of the working-age population that chooses to work, and the percent of those who choose to work that actually succeed in finding employment.

During the 1980s, the Northwest's labor participation rate was 65.5 percent and the ratio of the working age population (16 and over) to the region's total population was equivalent to that of the nation. Oregon's labor participation rate and population ratio, in particular, were substantially higher than both the regional and the national means.

On average, 8.7 percent of the region's labor force was unemployed during the 1980s, compared with the national figure of 7.5 percent. The back-to-back recessions of the early 1980s prompted average unemployment rates in the three states to climb into the double digits. Nonfarm employment in the region declined by nearly 4 percent between 1980 and 1983, compared with a slight national dip of 0.3 percent. During the latter portion of the decade, employment-population ratios for the region improved to the extent of nearing the national average. Given the countervailing effects of increased labor participation rates and increased working age population to total population ratios in the region, the overall impact of increased unemployment to declining regional personal income was not significant. The substantial change in earnings that the region recorded can be better explained by the role played by declining earnings per worker, which was the result of economic restructuring, particularly in lumber and wood products, mining, and construction.

The Forces that Drive the Northwest's Economy

Even the most casual observer understands that the various regions of the United States grow at different rates. The reasons behind these differences, however, are not as easily understood. Economists generally list the most important factors as industrial mix (such as high technology, nonmanufacturing growth, and small business and entrepreneurial activity) and access to markets and labor (population change). The business environment (including the role of government in taxes and public spending) has a much smaller effect.

► **INDUSTRIAL MIX.** Regional growth rates vary according to each area's dependence on growing and shrinking industries. Understanding the Pacific Northwest economy and its changing forces begins with a recognition of the fact that the region has historically relied on its natural resources—agriculture, forestry, mining, and fishing—to shape its economy. The Northwest is richly endowed, and economic growth has been hastened by the influx of people seeking to exploit those resources. Processing and transportation facilities developed along with other support services during the early decades of this century.

The role of natural resources as a stimulus for economic growth in the region faded over time, as nonresource industries developed to take advantage of the growing economic and social infrastructure. Although the resource dependency, as measured by shares of total gross state product, of the three states continues to be one of the highest in the country, the contribution of the region's natural resource sectors to economic growth declined during the 1980s. In addition, those manufacturing industries that are tied directly to natural resources lost importance as contributors to the region's economy. At the close of the 1970s, for example, the lumber and wood products industry was the largest manufacturing employer in the Pacific Northwest; more than 25 percent of the region's manufacturing jobs were within that sector. By the end of the 1980s, however, the industry accounted for just 19 percent of the region's manufacturing employment. Yet, despite the employment cuts, record lumber and plywood production levels were set year after year in the late 1980s.

The Importance of High Technology. During the 1980s, the Pacific Northwest, which boasts an enviable quality of life and the availability of a skilled, educated, and relatively inexpensive labor pool, became an increasingly popular location for technically sophisticated industries. The general education level in the region is above average: 18 percent of the people 25 years and older were college graduates or had completed advanced degrees, compared with a national figure of 16 percent. Although the region contains only 111 colleges and universities (New England has 268; California, 314), the Northwest has captured a disproportionate share of the nation's research dollars. The University of Washington is one of the nation's top public institutions in research and development funding.

> In recent decades, significant market growth in California and the Pacific Rim has highlighted the Northwest's strategic advantage and the opportunities that exist for trade-driven growth.

Although high technology industries throughout the United States generally fared better than traditional manufacturing, high-tech now represents a larger share of manufacturing in the Northwest than in the nation. High technology accounted for 36 percent of total manufacturing employment in the Pacific Northwest in 1988 and 33 percent in the nation. In addition, regional high-tech industries enjoyed stronger growth than their national counterparts; employment increased 21 percent in the Pacific Northwest from 1980 to 1988 and 11 percent nationally.

Undoubtedly, the strong performance of the Boeing Company—the region's largest employer—led the Pacific Northwest's economic recovery. Since 1983 the aerospace sector added more than 50,000 employees,

and, by the decade's end, aerospace employed an estimated 115,400 workers in Washington and Oregon. Despite restructuring and the attendant loss of employment in the region's other major transportation equipment industry—shipbuilding—the magnitude of the employment gains in aerospace propelled the sector into the forefront as the region's leading manufacturing employer.

The Pacific Northwest's other prominent high-tech industries—computer and office equipment, electronic components, computer programming and data processing, and chemicals—demonstrated vigorous, but erratic, growth. Employment gains in electronic components, computer and office equipment, and instruments halted abruptly in the fall of 1984, when world demand slowed and the competition from overseas producers, especially the Japanese, grew more intense. In 1985 and 1986, employment figures fell sharply throughout the country. With the exception of Oregon's instruments industry, these high-tech sectors have since recovered and recorded strong growth rates in the late 1980s. Idaho's computer equipment and electronic component industry, for example, nearly doubled in size between 1985 and 1989.

In a decade when the nation's manufacturing sector experienced net employment losses, the region's performance in manufacturing was quite impressive. At the outset of the 1990s, total manufacturing employment in the Pacific Northwest is an all-time high of 644,000 workers.

Nonmanufacturing Growth. If the customary role of manufacturing (along with agriculture and mining) is to provide the impetus for regional economic growth, nonmanufacturing employment and output can be treated as a derivative function. In the past, the Pacific Northwest's economic fortunes have been closely tied to those of its manufacturing sector, particularly its resource-dependent and energy-intensive industries. When those sectors fared well, the region prospered. The structural changes that occurred throughout the economy in recent decades, however, have muddied the traditional link between manufacturing and the rest of the economy.

The performance of nonmanufacturing employment in the region has not always been consistent with that of manufacturing (Table 1). In the early 1970s, the Pacific Northwest's weak manufacturing sector did not influence nonmanufacturing. During the second half of the 1970s, both manufacturing and nonmanufacturing fared better in the region than in the nation. In the 1980s, manufacturing, on a regional scale, grew more quickly than the national average; nonmanufacturing lagged behind.

Construction employment in the Pacific Northwest increased rapidly during the late 1970s, compared with a slow-paced national rate. During the 1980s, however, the region's overall construction employment levels stagnated, while the national average increased by more than 2 percent annually. Much of the regional decline in construction during the decade is attributable to the collapse of the Washington Public Power Supply System's nuclear power projects and the large layoffs it produced in the early 1980s. By the late 1980s, the construction industry was once again vigorous, the result of strong local growth.

Growth in the Northwest's trade and finance, insurance, and real estate industries exceeded that of the nation during the 1970s, but dipped below the national average in the 1980s. The regional government sector outpaced the nation in terms of employment growth during the 1970s, but only slightly so during the 1980s. Services, in comparison, grew significantly faster in the region than in the nation throughout both decades. Services' share of regional nonagricultural employment totaled 34 percent in 1989, compared with a national share of 25 percent, which indicates that the Pacific Northwest's services industry no longer operates in a purely local market. Other regional nonmanufacturing industries that figured prominently in the 1980s include tourism and the internationally oriented computer software services industry and its research and development facilities.

Renaissance of Small Business and Entrepreneurial Activity. Economies change continually; businesses—and entire industries—expand or contract, open or close. During the 1980s, small businesses and their role in the economy received national attention. The prolonged expansion of the 1980s created more than 7 million net new jobs in the United States, and more than 80 percent of them were credited to businesses that employed between 20 and 100 workers. The nation's Fortune 500 companies, as a whole, lost employment during the expansion period.

In the Pacific Northwest, the data tell a slightly different story. The U.S. Small Business Administration noted that very small firms—those that employ fewer than 20 people—accounted for more than 43 percent of the net jobs generated between 1980 and 1986, a figure that was less than the national average. In the region, large firms—those with more than 500 employees—actually produced more new jobs than small businesses.

Nonetheless, during the severe recession of the early 1980s, very small firms dampened the effect of net employment loss in the region. During the recovery and expansion periods from 1982 to 1986, the greatest share of employment gains in the North-

(continued on page 14)

Table 1: Nonmanufacturing and Manufacturing Employment and Population Growth, 1969-1989
annual percent changes

PACIFIC NORTHWEST

	NONMANUFACTURING EMPLOYMENT	MANUFACTURING EMPLOYMENT	POPULATION
1969-73	3.6	−0.0	1.3
1974-79	5.4	2.6	2.8
1980-89	2.5	1.1	1.1

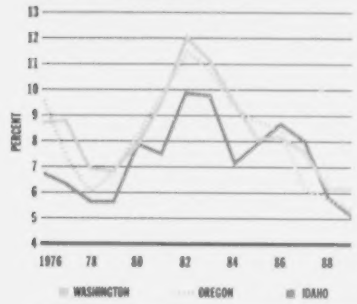
UNITED STATES

	NONMANUFACTURING EMPLOYMENT	MANUFACTURING EMPLOYMENT	POPULATION
1969-73	2.7	−0.1	1.2
1974-79	3.4	0.2	1.1
1980-89	3.0	−0.4	1.0

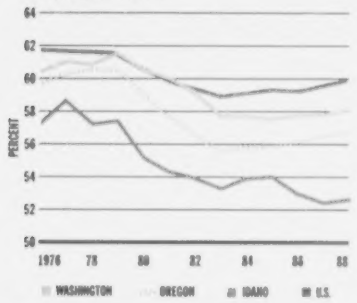
SOURCES: U.S. Bureau of the Census, U.S. Bureau of Labor Statistics, Washington State Employment Security Department, Oregon State Employment Division, Idaho Employment Security Department

Pacific Northwest Employment, Hours, and Earnings Indicators[1]

UNEMPLOYMENT RATES[2,3,4]

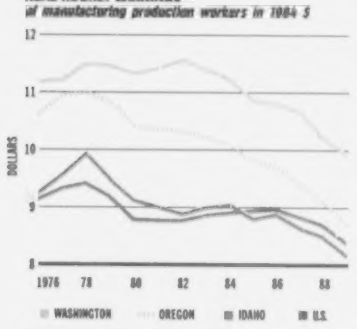


WAGES AND SALARIES AS PERCENT OF PERSONAL INCOME[3]

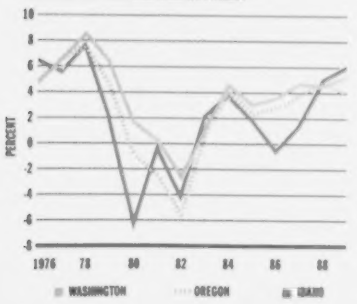


REAL HOURLY EARNINGS[6,7]

of manufacturing production workers in 1984 $



CHANGE IN PAYROLL EMPLOYMENT[2]



LABOR FORCE[2,3,4]

In thousands

YEAR	WA	OR	ID
1976	1,621	1,068	392
1977	1,691	1,130	410
1978	1,808	1,224	428
1979	1,937	1,243	436
1980	1,985	1,297	424
1981	1,996	1,339	422
1982	2,024	1,323	419
1983	2,068	1,341	421
1984	2,051	1,334	427
1985	2,091	1,317	433
1986	2,199	1,360	431
1987	2,255	1,388	425
1988	2,315	1,408	479
1989	2,451	1,441	489

EMPLOYMENT[2,3,4]

In thousands

WA	OR	ID
1,481	966	367
1,544	1,047	384
1,684	1,149	407
1,806	1,158	414
1,828	1,189	397
1,806	1,207	395
1,779	1,171	382
1,838	1,196	390
1,857	1,209	400
1,921	1,202	405
2,018	1,245	403
2,085	1,301	401
2,173	1,326	451
2,300	1,364	464

UNEMPLOYMENT[2,3,4]

In thousands

WA	OR	ID
140	102	26
148	83	26
124	74	21
131	85	22
156	107	27
190	132	27
245	153	37
231	145	32
194	125	27
170	116	28
180	115	28
171	86	24
143	82	28
151	77	25

AVERAGE WEEKLY EARNINGS[6]

manufacturing production workers
in dollars

YEAR	WA	OR	ID
1976	248.68	236.12	204.72
1977	267.74	257.45	228.73
1978	297.11	281.97	253.36
1979	323.85	304.92	265.04
1980	361.34	329.57	280.11
1981	405.07	355.13	311.09
1982	432.36	379.76	316.35
1983	444.24	397.17	335.85
1984	450.47	409.25	351.18
1985	453.57	406.35	355.70
1986	463.74	412.23	369.01
1987	479.28	413.95	370.54
1988	482.48	416.58	381.80
1989	487.77	425.52	394.30

AVERAGE WEEKLY HOURS WORKED[6]

manufacturing production workers
in hours

WA	OR	ID
39.1	38.9	38.7
39.2	38.6	39.3
39.3	39.0	38.8
38.6	38.5	38.3
38.4	38.1	37.1
38.8	37.5	37.8
38.5	37.9	36.7
38.9	38.9	37.4
38.8	39.2	37.6
39.0	38.7	37.8
39.4	39.0	38.2
39.9	39.2	38.2
40.1	39.3	38.1
39.4	39.4	38.7

NOMINAL EARNINGS PER HOUR[6]

manufacturing production workers
in dollars

YEAR	WA	OR	ID
1976	6.36	6.07	5.29
1977	6.83	6.67	5.82
1978	7.56	7.23	6.53
1979	8.39	7.92	6.92
1980	9.41	8.65	7.55
1981	10.44	9.47	8.23
1982	11.23	10.02	8.62
1983	11.42	10.21	8.98
1984	11.61	10.44	9.34
1985	11.63	10.50	9.41
1986	11.77	10.57	9.66
1987	12.01	10.56	9.70
1988	12.03	10.60	10.00
1989	12.38	10.80	10.18

REAL EARNINGS PER HOUR[6,7]

manufacturing production workers
in 1984 dollars

WA	OR	ID
11.12	10.61	9.25
11.22	10.95	9.56
11.52	11.02	9.95
11.48	10.83	9.47
11.35	10.43	9.11
11.42	10.36	9.00
11.59	10.34	8.90
11.44	10.23	9.00
11.24	10.11	9.04
10.83	9.82	8.80
10.84	9.73	8.89
10.68	9.39	8.62
10.28	9.06	8.55
9.94	8.67	8.19

NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT, 1989[1,2]

By Industry
In Thousands

	WA	OR	ID
TOTAL NONAGRICULTURAL EMPLOYMENT	2,045.3	1,206.6	367.0
MANUFACTURING	361.4	217.2	60.6
DURABLE GOODS	257.5	158.5	32.2
Lumber and Wood Products	41.1	66.9	14.8
Furniture and Fixtures	4.0	3.0	NA
Stone, Clay, and Glass Products	7.5	4.2	0.9
Primary Metals	13.2	11.0	NA
Aluminum	8.9	5.3	NA
Fabricated Metals	11.8	12.3	2.3
Machinery, Excluding Electrical	19.0	17.6	6.2
Electronic and Electrical Equipment	11.7	15.6	4.8
Transportation Equipment	128.5	11.4	NA
Aerospace	112.9	NA	NA
Other Transportation Equipment	15.6	NA	NA
Instruments and Related Products	14.9	12.5	NA
Other Durable Goods	5.9	3.9	3.1
NONDURABLE GOODS	103.6	58.7	28.4
Food and Kindred Products	35.6	23.6	16.9
Textiles, Apparel, and Allied Products	7.8	4.5	NA
Paper and Allied Products	18.3	9.1	2.0
Printing and Publishing	21.8	13.5	4.6
Chemicals and Allied Products	12.2	2.2	3.5
Other Nondurable Goods	8.1	5.9	1.3
NONMANUFACTURING	1,684.1	989.5	306.4
MINING AND QUARRYING	3.6	1.4	3.6
CONSTRUCTION	106.6	45.2	16.0
TRANSPORTATION, COMMUNICATION, AND UTILITIES	107.9	62.9	19.1
TRADE	500.9	309.6	94.3
Wholesale Trade	124.6	78.2	22.7
Retail Trade	376.4	231.4	71.7
FINANCE, INSURANCE, AND REALTY	112.3	75.3	19.3
SERVICE AND MISCELLANEOUS	473.4	279.9	75.9
GOVERNMENT	379.4	215.2	78.1
Federal	72.0	32.2	12.9
State and Local	307.4	182.9	65.2
Education	160.6	101.2	35.4
Other	146.8	81.8	29.8

NOTES:

1. All 1989 figures are preliminary estimates.
2. Washington State Employment Security Department, State of Oregon Employment Division, and State of Idaho Department of Employment.
3. Unemployment rates cannot be calculated directly from the tables due to rounding.
4. Washington and Oregon data from 1978 to the present have been revised to incorporate a methodology change (July 1988 *Monthly Labor Review*).
5. Bureau of Economic Analysis, U.S. Department of Commerce.
6. Washington State Employment Security Department, State of Oregon Employment Division, State of Idaho Department of Employment, and U.S. Bureau of Labor Statistics, Employment, Hours, and Earnings.
7. Computed using the U.S. Consumer Price Index for urban wage earners and clerical workers (CPI-W) from the U.S. Bureau of Labor Statistics.
8. Excludes workers in labor disputes.
9. Washington data on fabricated metals, machinery, chemicals, and trade industries deviate slightly from BLS definitions and are not strictly comparable to data from other states.
10. Washington trade earnings now include restaurants, so 1989 data are not comparable to data from previous years.

AVERAGE HOURLY EARNINGS, 1989[7,9,10]

By Industry
In dollars

	WA	OR	ID
MANUFACTURING	12.39	10.80	10.21
DURABLE GOODS	NA	10.94	NA
Lumber and Wood Products	11.21	11.03	10.79
Furniture and Fixtures	NA	9.34	NA
Primary Metals	12.69	12.13	NA
Fabricated Metals	11.97	10.14	NA
Machinery	9.90	11.06	NA
NONDURABLE GOODS	NA	10.39	NA
Food and Kindred Products	9.61	8.74	8.29
Textiles, Apparel, and Allied Products	NA	6.86	NA
Paper and Allied Products	NA	15.09	NA
Printing and Publishing	NA	11.69	NA
Chemicals and Allied Products	15.23	NA	[illegible]
NONMANUFACTURING	NA	NA	NA
MINING AND QUARRYING	NA	NA	13.38
CONSTRUCTION	16.78	15.06	13.46
TRANSPORTATION, COMMUNICATION, AND UTILITIES	NA	13.33	NA
TRADE	8.87	9.19	7.68
Wholesale Trade	NA	11.12	8.54
Retail Trade	NA	8.04	7.21

Sources of Information on Employment and Earnings

There are several alternative employment and payroll data series available to people interested in labor force statistics. Due to methodological differences, care must be taken to use the data appropriately. Monthly data reflect pronounced seasonal changes and should be seasonally adjusted where interest centers on cyclical changes. The following summary outlines the distinctive characteristics of the major series and provides a guide to sources of more detailed information.

LABOR FORCE STATISTICS. Resident civilian labor force and employment statistics provide information about the size of the labor force, the number of persons employed, and the number of persons unemployed. By definition, the labor force is the sum of the employed and unemployed. The employed portion of the labor force, which includes the self-employed as well as part- or full-time employees, is estimated on a place of work basis using surveys and adjusted to a place of residence basis using Current Population Survey data. State estimates of unemployment are based on state unemployment insurance (UI) records with adjustments to include data from the Current Population Survey. These data do not provide industry detail, but are available for states, counties, and selected SMSAs on a monthly basis.

PAYROLL STATISTICS. Nonagricultural wage and salary employment, also called payroll employment, is estimated each month on the basis of information provided by a sample of cooperating establishments on data collection forms called "shuttle schedules." The data are collected each month by state employment agencies. These data are available for states, counties, and selected SMSAs on a monthly basis. The shuttle schedules also provide monthly data on average hours and earnings for production and related workers in selected industries. Although providing considerable detail by industry, this series does not cover farm workers, the self-employed, unpaid family workers, or military personnel.

UNEMPLOYMENT INSURANCE STATISTICS. The quarterly "covered employment" statistics include employment and payroll data by industry for employees who are covered by state UI programs. Although providing more extensive industry detail than the monthly payroll statistics, the data do not include all workers covered by state insurance programs. Comparability over time and among states is not assured because of eligibility differences.

OTHER EMPLOYMENT RELATED DATA SERIES. In addition to the different measures of employment described above, other data series are available to describe the demographic features of workers, wage rates, occupational distributions, and other characteristics of the working and unemployed population in each state. Further information may be obtained by contacting the statistical division of the state employment agencies: the Employment Security Department, Labor Market and Economic Analysis Board in Olympia, Washington; the Department of Human Resources Employment Division, Research Statistics Section in Salem, Oregon; and the Department of Employment, Bureau of Research Analysis in Boise, Idaho.

(continued from page 11)
west was in medium and large firms. The number of new jobs produced by newly formed businesses was greater than the number created by growth in existing firms; the number of job losses in businesses that closed down exceeded the losses in firms that downsized their work forces.

► **ACCESS TO MARKETS.** Early in the Pacific Northwest's development, the region's producers believed that they suffered a competitive disadvantage because of their lack of access to major domestic markets. In recent decades, significant market growth in California and the Pacific Rim have highlighted the Northwest's strategic advantage and the opportunities that exist for trade-driven growth.

The 1980s were a decade of tremendous surges in global commerce; international trade has grown faster than most of the world's national economies. The U.S. export volume rose slightly faster than other U.S. gross national product components between 1983 and 1986, and rose four times faster than the rest of the economy between 1987 and 1989.

In the late 1980s, the value of Pacific Ocean trade surpassed that of the Atlantic for the first time, underscoring the rapid growth and dynamism of Asian economies. In addition, the United States-Canada Free Trade Agreement was passed to strengthen the world's largest trading relationship ($150 billion annually), which offers important benefits for the Pacific Northwest states and Canada's western provinces. The region's newly significant location on the Pacific Rim provides Washington and Oregon with a competitive advantage in the production of goods and services for export to the rapidly growing countries of the Pacific, in the transshipment of goods between the United States and its Pacific trading partners, and in attracting foreign investment.

In recent years, the quantity of exports originating within the three-state region grew faster than that of the nation. Between 1987 and 1988, regional exports expanded by more than 33 percent, compared with the nation's robust 22 percent. While such Asian countries as Japan, Korea, and China are important consumers of the region's raw commodities, the Northwest's high value-added products are in demand in both Asia and Europe. The value of the region's manufacturing exports grew from $11.2 billion in 1980 to $15.8 billion in 1988. (With the inclusion of raw commodities, total Northwest exports in 1988 amounted to $17.9 billion.)

The region's export basket shows remarkable diversity. Transportation equipment, primarily aircraft and parts, accounts for nearly half of the value of total shipments. But processed food, instruments, machinery, electrical and electronic components, paper and wood products, primary and fabricated metals, chemicals, and software represent international markets that are vital to many of the region's producers.

The value of two-way trade from the region's port facilities—in Seattle, Tacoma, and Portland—increased from $4.3 billion in 1970 to an estimated $60.1 billion in 1989, which is a 5 percent share of the nation's merchandise trade total. The containerized shipping ports of Seattle and Tacoma have become the West Coast's second leading load center.

Although the total figure is still relatively small, nonbank foreign investment grew faster within the Pacific Northwest than in the nation during the decade. Less than 2 percent of the region's nonagricultural workers are employed in foreign-owned enterprises. Most foreign investors are Canadian and European, although the Japanese have been responsible for an increasing share of investment in recent years.

► **POPULATION CHANGE.** It's not always clear whether population movements spur economic growth or whether economic growth attracts population migration. During the latter half of the 1980s, the region, with its improved economic prospects, drew above-average levels of newcomers. Migration growth rates were particularly strong in the major urban areas of the Puget Sound, Portland, and Boise, where much of the region's job growth was centered. Even with the growth in the region's work force, labor shortages were evident in the low-skill, low-paying jobs in the services and retail trade sectors and in the highly skilled, high-paying positions in the construction, health care, and high-tech industries. The strong regional economy, coupled with recent demographic trends, indicates that the sharp decline in the number of young, entry-level workers that was felt in the 1980s (Figure 1) will continue into the coming decade.

► **THE BUSINESS ENVIRONMENT.** During the decade, Washington, Oregon, and Idaho elected governors who promised to improve economic development opportunities and growth for their respective states. A region's attractiveness to business, however, is the product of a number of factors, including the availability and cost of labor and other production inputs, access to markets, and such site-related costs as taxes, infrastructure, and regulations. Because elected officials have no real control over major cost elements or their state's proximity to markets, they have focused on improving and streamlining services and reducing taxes. Unfortunately, given what we know from the available research on the factors that determine business location and expansion decisions, tax reductions have little or no apparent effect.

The Role of Government. As an employer, the government sector had a positive influence on the region's economy during the 1970s and 1980s. Federal financial support to state and local governments in the Pacific Northwest, however, declined in real per capita terms during the last decade. On a per capita basis, federal allotments to the region totaled 110 percent of the U.S. average. To the degree that federal aid dollars

substitute for the portion of state and local taxes that businesses pay or help finance the services that businesses value, the prospect of obtaining additional aid can enhance an area's attractiveness to business.

A 1990s Image

As the Pacific Northwest enters the 1990s, its economic condition differs markedly from its situation in 1980. The region now projects an image of economic prosperity and vitality, rather than one of economic stagnation and decline. Fueled by high technology, aerospace, international trade, and services, the region's economic growth in the late 1980s was extraordinary. Those sectors will continue to play a critical role in the Northwest in the next decade.

The 1990s will bring a continuation of fundamental economic restructuring. The demise of the Communist state-run economies in eastern Europe, the globalization of the economy, and the growing importance of an information- and knowledge-based economy has broad implications for the Pacific Northwest. How will such developments affect industries within the region? Will high technology and aerospace continue their strong upward paths? Will the region's traditional mainstays of forestry, agriculture, mining, fishing, and their derivative processing industries stabilize? And what are the economic implications of changing demographics?

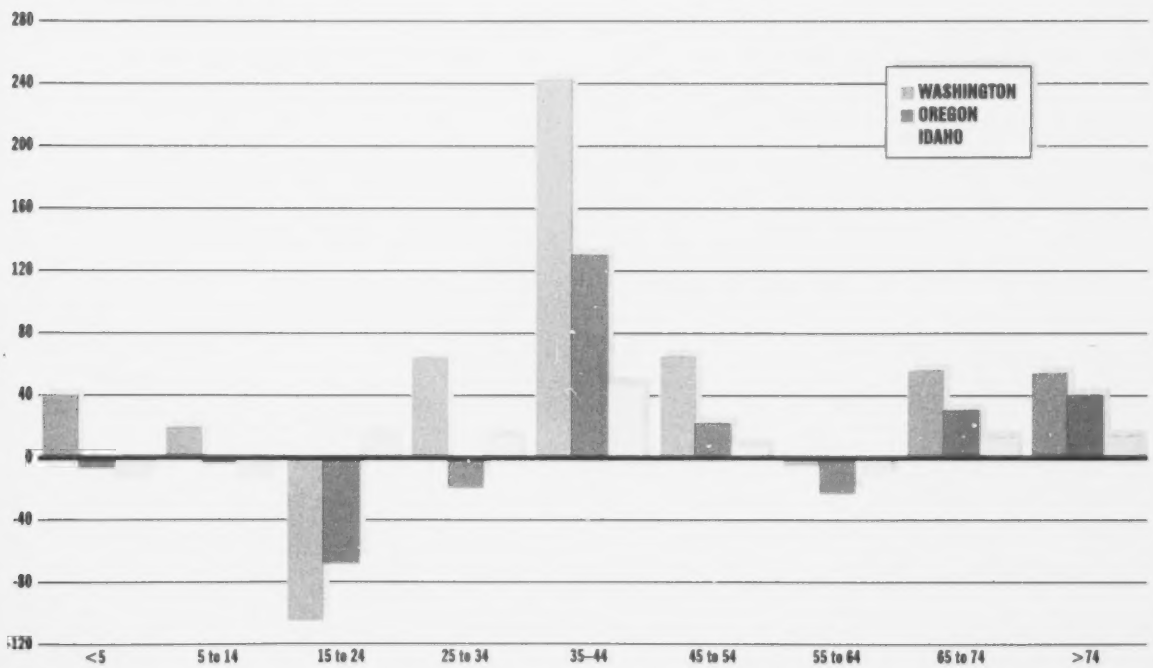
The political and economic events shaping eastern Europe will certainly result in changes in the U.S. defense budget. Those areas of the Northwest that are dependent on defense expenditures—the Puget Sound, Hanford, and Idaho Falls—may need to revise their growth projections.

The Pacific Northwest, already one of the most trade-dependent regions in the country, is well positioned to benefit from continued growth in international trade. The region's ports have garnered an increasing share of the West Coast's international freight activity, but the economic opportunities afforded by the rise of the Pacific Rim economies are accompanied by economic risks. While Japan and the newly industrialized countries of Singapore, Korea, and Taiwan offer new markets for some of the region's firms and promise increased activity for the region's international trade sector, they also pose fierce competition for other area firms. As they increase their economic presence in the Northwest, those nations may begin to exert an uncomfortable pressure on specific industries.

The knowledge-intensive industries of the 1980s—computer software, biotechnology, and advanced materials—will continue to grow and shape the region during the 1990s. These sectors will place renewed emphasis on the quality of the region's work force and its educational institutions.

The 1980s, a decade that began with double-digit inflation, high unemployment, and interest rates in the range of 19 percent, turned out far better than many people —including economists—expected. The 1990s may also exceed our expectations. Economic growth will no doubt slow from the robust rates of the late 1980s, but we can anticipate that, with declining inflation and lower interest rates, it will be steady.

Figure 1: Population Change by Age Group, 1980-1988
In thousands



Import Substitution in the Pacific Northwest

In 1983 Willamette Poultry in Creswell, Oregon, was looking for ways to expand its local market. At the same time, Chef Francisco, a Eugene-based frozen food processing company, was searching for a more reliable and less expensive cooked chicken supplier to replace its North Carolina source. Enter the Oregon Marketplace, a program created to pair local business needs with local suppliers, which arranged a $1.2 million match between the two firms. The match led to a $1.5 million expansion for Willamette Poultry and the creation of 80 jobs with an average hourly wage of $7.30. And the relationship saved Chef Francisco approximately $110,000 in yearly operating costs.

The Willamette Poultry-Chef Francisco match is an apt illustration of the import substitution process: regional firms begin producing goods or services that the region had formerly imported. As a result of the process, money that had been spent on imports, such as cooked chicken for frozen dinners, and flowed out of the region is spent locally, creating new jobs and new market opportunities.

Oregon Marketplace, the first import substitution program established in the United States, was formed in 1983. Today, there are also marketplace programs in Washington and British Columbia, and several import substitution programs, such as Buy Idaho, that are based more on the consumer's loyalty to his or her state than cost or quality considerations.

The marketplace concept, one of the truly innovative economic development programs of the 1980s, was conceived to promote import substitution within states and regions. Although import substitution has long been recognized as a potential means of economic development, its viability and net economic benefits have long been questioned. In particular, is import substitution capable of fostering regional economic development? How does import substitution stimulate regional economies? Are there practical limits to such opportunities, especially in rural areas? Are the import substitution programs now in place effective and, if not, how can they be improved?

Import Substitution in Economic Development

Until recently, the strongest proponents of import substitution were in developing countries, where governments often implement policies to protect infant industries, as well as improve their balance of payments. As a policy tool, however, import substitution in developing countries has met with little success. World Bank research reveals that these strongly inward-oriented countries have failed badly in both their overall economic performance and their single-minded efforts to promote and protect their domestic industries.

Despite such disparaging reports from international circles, interest in import substitution has recently been revived and recast as a regional economic development tool in a number of states and localities. Many of the marketplace programs in North America trace their roots to the popular writings of Jane Jacobs, a Canadian economist. In her 1984 book, *Cities and the Wealth of Nations*, Jacobs emphasized that all developing economic life depends on cities. In the early stages of development, economic life becomes urbanized and intercity trade grows. As trade continues to expand, cities begin replacing imports with goods that they produce for themselves. Import substitution, then, is a condition for the continuation of the urban development process.

By stressing that import substitution is a city process, however, Jacobs casts doubt on the effectiveness of import replacement as a strategy for rural development. Jacobs also fails to discuss the public policies and programs that have been created to stimulate import substitution, thereby leaving the question of whether the public sector has a legitimate role in the process open to debate.

One reason why import substitution has been neglected is that export base theory is the principal model in regional economic development. Export base theory divides the economy into the export sector, which is comprised of the firms (mining, manufacturing, farming) that serve markets outside the region, and the local sector, which is made up of the firms (grocery stores, banks) that serve local markets. Of these two components, the export sector is considered the engine of the economy, since it brings new money into the region through the sale of products outside the area. This income, in turn, triggers a recirculation, or multiplier, process in the region and creates jobs in the local sector. Imports, in contrast, increase the flow of money that leaves the region's economy.

Because the economic growth of a region depends on an expanding export market, export base theory has been a fundamental part of many regional economic development programs. States now have programs to recruit high technology firms, to retain and expand existing goods-producing companies, and to promote tourism. As a result, policy-makers ignore the import side of the region's economy—including import substitution—because it is less dramatic.

Measured in terms of jobs and income, however, import substitution has an equivalent impact on a region's economy as a comparative increase in exports. For instance, a local firm that has begun to manufacture plastic parts, which were once imported, for an aircraft assembly operation has virtually the same employment and income impact as a similar-sized firm that fabricates parts for export.

Import substitution is often viewed as a natural consequence of economic growth. As a region's population and income levels increase, its economy becomes large enough for the region to begin producing some goods and services locally. The local support sector not only expands in response to the increased demand, but also broadens with the addition of new activities.

Most firms, in an effort to reduce costs and increase profits, continually search for cheaper sources of supply. As a consequence, these companies may switch to suppliers that are closer to home in an effort to reduce transportation expenditures and increase their control over the quality of the

product or service. With the advent of just-in-time manufacturing and inventory control, such cost and quality factors have become even more critical to producers.

Marketplace Programs in the Pacific Northwest

The first public sector-supported import substitution program in the United States was Buy Oregon, which was developed and implemented by the Eugene-based Neighborhood Economic Development Corporation (NEDCO) in 1982. At a time when the local economy was reeling from massive layoffs in the forest products industry, the program emphasized the involvement of businesses in a Buy Oregon campaign, the initiation of a public education project to promote import replacement, and the creation of a brokerage office to match local buyers with local suppliers. In its first year of operation, the project reported 14 contract agreements that replaced $1.5 million in imports, created 90 jobs, and saved local buyers $125,000. With a budget of only $35,000, Buy Oregon's match value-cost ratio ($1,500,000/$35,000=43) represented an extremely high return rate for such a small program.

In 1986 the Oregon legislature awarded NEDCO a $441,000 grant to establish a network of import replacement programs called Oregon Marketplace. By matching state funds with local monies, Oregon Marketplace initiated matches totaling $1 million during its first full year of operation. Since 1987 the marketplace program has added another $2.5 million to its tally.

Oregon Marketplace is now a network of eight regional programs, which cover most of the state. Although local agencies are given wide latitude in implementing their marketplace programs, they generally seek import substitution opportunities and facilitate matches within their communities, and provide the lead contractor—the Organization for Economic Initiatives (a spin-off of NEDCO)—with operating and financial information to monitor the programs' costs and benefits.

The Replacement Process

The import substitution process is typically initiated by an Oregon Marketplace broker. The broker first contacts businesses (the majority of which are manufacturing firms) to determine which goods and services they're purchasing. During these preliminary meetings, the broker attempts to sell the import replacement concept on the basis of its potential for lowering the buyer's costs, raising profits, and helping the local economy.

Once a buyer agrees to participate in the program, a search announcement is circulated among potential local suppliers, using an extensive information network that includes an electronic bulletin board, business contacts, and word-of-mouth referrals. Although a buyer is aware of the names of potential suppliers, the name of the buyer is concealed until that firm decides otherwise, and the information is made public.

Each supplier that submits a bid signs an agreement stating that, in the event of a contract with the purchaser, the firm will pay a fee in the amount of 5 percent of the value of the first year's contract. The broker helps negotiate a contract between the purchaser and the supplier and, upon completion of the match, collects a fee for the service. If the fee appears to be an obstacle to completing the union, some brokers either lower or waive their charge. In addition, many brokers continue to provide follow-up assistance once the contract goes into effect.

In 1988 the Washington legislature established Washington Marketplace to encourage businesses within the state to buy from local suppliers. This program is essentially patterned after Oregon's, with the exception that the Washington Marketplace uses existing local economic development organizations to facilitate matches. Since the first regional program began in Tacoma in 1987, Washington Marketplace has expanded to a network of eight regional offices, which

Table 1: Estimated Imports by Sector and Product, 1987
In millions $

IMPORTING SECTOR	RESOURCE COMMODITIES	MANUFACTURING GOODS	SERVICES	TOTAL IMPORTS
WASHINGTON				
Resource Industries	355	1,216	552	2,123
Manufacturing Industries	1,808	12,814	2,804	17,426
Service Industries	20	2,413	2,893	5,326
Households	45	7,236	7,610	14,891
Government	16	729	319	1,064
TOTAL	2,243	24,408	14,179	40,830
OREGON				
Resource Industries	70	240	109	419
Manufacturing Industries	654	4,634	1,014	6,302
Service Industries	17	2,094	2,511	4,622
Households	27	4,379	4,605	9,011
Government	10	202	202	673
TOTAL	778	11,808	8,441	21,027

SOURCES: *Washington State Input-Output Study For 1982*; Dick Conway and Associates

cover about half of the state's counties, and has succeeded in keeping more than $3.7 million of business within the state.

One of the immediate impacts of a match is the creation of new business for the local supplier. Some suppliers hire additional employees or are able to retain those that may have been let go. The purchasing firm benefits from the match because it reduces its cost of materials and increases its profits. Taxpayers, who subsidize most of the program costs, also share in some of the benefits, such as the additional tax dollars generated by increased economic activity and decreased welfare costs.

The indirect economic effects of the program, although more difficult to measure, are no less significant. In most communities, each job created or saved tends to create or save one other job. In addition, the match may open up long-term business opportunities, both locally and outside the state, for the supplier.

The Potential for Import Substitution

In general, one shortcoming of many import replacement programs—including the Oregon and Washington versions—has been their inclination to launch an operation without assessing the size and nature of the market potential. Measuring the market, however, is difficult, because the value of state imports is not equivalent to the import substitution potential. The value of imports simply identifies the annual amount of leakage that flowed out of the state, in terms of imports purchased by state and local governments, households, and businesses. Although the value of Washington's and Oregon's imports was estimated at $62 billion in 1987 (Table 1), the estimated potential for import substitution was considerably less. The region cannot competitively replace, for example, imports of automobiles, petroleum, or exotic foods.

Another drawback of marketplace programs is that they tend to restrict their operations to imports of manufactured goods by manufacturers—even though the largest importing sector within Washington and Oregon is composed of individual households. If import substitution programs are to take full advantage of their market, they must recognize that there are opportunities outside the manufacturing sector. Recently, the Washington and Oregon programs have focused on the untapped potential of the government sector. According to Rollie Wisbrock, the executive director of Oregon Marketplace, "state procurement for needed materials and supplies for its capital construction projects presents numerous opportunities for the state's smaller business suppliers."

The Debate

The topic of import substitution, and its role in economic development, raises a number of conceptual issues. First, there is the criticism that import substitution programs merely represent a shift of economic activity from one place to another with no net benefit to society as a whole. One region's gain is simply another region's loss. This criticism is indeed true if the resulting shift in activity fails to yield lower costs for producers and lower prices for consumers. Officials of the Washington and Oregon marketplace programs assert that competition within the Pacific Northwest is not their intent. The purpose, Wisbrock said, is to "develop resources to their maximum potential and make connections for in-state industries."

Second, although regional import substitution programs are not protectionist in the strict sense, they can act as a trade barrier by constricting the flow of information to nonlocal firms, which may be able to produce better-quality goods for less money. Thus, to the extent that an import substitution program controls information, it provides local businesses with a degree of protection from outside competition. Marketplace officials, however, argue that they offer an increased flow of external information on trade leads and opportunities, which is particularly advantageous to small and new businesses. The Try Iowa import substitution program even allows out-of-state buyers access to its extensive computerized database of potential buyers and suppliers.

A third issue focuses on the practical limits of import substitution opportunities in a region and whether the process can work in small cities and rural areas. The import substitution potential within any industry is based on the size of the local market and the local cost of producing goods or services, compared with the cost of importing that same product. The process of import substitution is dynamic and implies a requisite expansion of the local market. As the local market grows, changing economies of scale determine the success of import substitution. Sparsely populated and economically immature regions admittedly have limited internal opportunities for import substitution.

Officials acknowledge that the marketplace programs to date have not been very effective in rural areas. Arthur Yoshioka, the executive director of the Pacific County Economic Development Council, which operates the Coastal Marketplace, stated that "searches—not to mention matches—have been difficult to generate because the area's economy is small in terms of business opportunities and is distressed." Some regional programs have sought to join with urban centers, thereby turning the economic markets of cities into opportunities for rural businesses. Import substitution, then, becomes one means of stimulating rural economies while easing congestion in booming urban areas. Some rural marketplace programs have become information networks that link together local producers and develop consortiums of suppliers. Oregon Marketplace, for instance, hopes to expand the secondary wood products industry in rural Oregon by developing more flexible supplier networks.

Finally, if import substitution is an economic process that occurs naturally, what is the public sector's role in stimulating marketplace opportunities? By gathering and disseminating information on buyers and suppliers, a public sector marketplace program can effectively identify opportunities for both existing firms and entrepreneurs, and offer this information at a relatively low cost. The key to the success of the Try Iowa program is its database, which contains information on thousands of Iowa products, services, and businesses. Oregon Marketplace's computerized database not only identifies import substitution potential, but is being used to target export market opportunities, state and federal procurement possibilities, and cooperative production networks. The increased flow of information has helped lessen the uncertainty about present opportunities and future markets.

Import substitution is a rather simple and innovative approach to regional economic development. Both businesses and communities stand to benefit from the marketplace programs that enhance import substitution opportunities. As evident by the $62 billion in imports, there appears to be no practical limit to import substitution potential in the Pacific Northwest.

CRISIS MANAGEMENT

Apples, which are one of Washington State's top agricultural commodities, represent a $700 million a year industry. In early 1989, that industry was shaken when "Sixty Minutes" broadcast an investigative report that focused on the use of Alar on Red Delicious apples. Within days of the broadcast, the industry was in shock: public confidence had been seriously breached, retail apple sales dropped, wholesale prices fell, and industry representatives, government agencies, and apple growers were scrambling to contain and repair the damage.

By the end of the year, it was evident that the Alar scare itself had been fleeting: the public's confidence was soon restored and apple sales regained their strength. But the industry is still feeling the effects of the crisis. Washington's apple growers have suffered an estimated loss of more than $100 million, and many growers now find themselves in precarious financial positions.

How successful was the industry in managing the Alar crisis? Did it recognize the potential for a crisis? Was it able to respond in a manner that minimized the damage? By reviewing the chronology of the event and analyzing the industry's response, we can use this example of crisis management to benefit managers in other industries.

The Alar Crisis

Alar (Daminozide UDMH) is an apple growth and color enhancer that was developed by the UniRoyal Chemical Company in 1963. Within 10 years of its introduction, however, Alar was linked to cancer in tests using laboratory animals. In 1980 the Environmental Protection Agency decided to investigate the health implications of Alar and notified UniRoyal of its intent. At about the same time, the International Agency for Research on Cancer added Daminozide to its list of known carcinogens. Five years later, environmental interest groups called for the government to impose a ban on the use of the chemical. The EPA, however, found the related cancer studies to be scientifically flawed and decided that it did not have enough evidence to ban Alar. A year later, in an effort to avoid negative consumer reaction, the Tree Top Company, the world's largest processor of apple juice and apple products, voluntarily placed a moratorium on its use of Alar-treated apples.

Until 1989, the issue remained quiet, unresolved because of conflicting test results. UniRoyal continued to advocate the use of Alar to growers and promised to fight further EPA attempts to decertify the application of the chemical in apple orchards.

In February 1989, the issue of Alar's carcinogenic properties resurfaced when the EPA announced that it was intensifying its efforts to eliminate the use of Alar. Then, on February 26, CBS aired "A Is for Apple" on "Sixty Minutes." The segment featured representatives from consumer advocate groups and an EPA spokesperson, and highlighted the potential cancer-causing effects of consuming Alar-treated products. The next day, the National Resource Defense Council (NRDC), the principal interest group featured in the "Sixty Minutes" broadcast, issued a 141-page report entitled "Intolerable Risks: Pesticides in our Children," which detailed the risks of exposing preschoolers to pesticide-infected foods, particularly apples.

During the course of the next month, several government agencies attempted to pacify the public outrage and mistrust generated by the show and its subsequent media attention. The Environmental Protection Agency retracted the statements its spokesperson had made on "Sixty Minutes" and tried to reassure the public that Alar-treated apples were safe to eat. The report issued by the NRDC, the EPA explained, had been based on outdated and discredited data. On March 19, the EPA, the Food and Drug Administration (FDA), and the United States Department of Agriculture (USDA) issued a joint statement that testified to the safety of eating Alar-treated apples and reasserted that the validity of the NRDC's report was questionable.

On May 14, 1989, "Sixty Minutes" aired a follow-up segment, "What About Apples?" which carried an unedited 20-second presentation by the International Apple Institute. The presentation featured announcements by Surgeon General C. Everett Koop and the head of the FDA, attesting to the benefits of eating apples. Shortly thereafter, the EPA announced its intent to begin banning the use of Alar on all food, although it continued to maintain that Alar-treated food products did not constitute a health threat. At this point, the Washington State Apple Commission and the International Apple Institute asked growers to voluntarily stop using Alar. On June 2, UniRoyal stopped all domestic sales of Alar and issued a total recall of the chemical.

By this time, however, the apple industry had experienced a serious drop in the price of apples, and many growers were suffering heavy financial losses. To alleviate the financial shortfall, an ad hoc group, headed by a Wenatchee-area grower, initiated a lobby for a federal government buy-out of 1988's surplus apples. Elected state officials joined with other umbrella organizations and the International Apple Institute to support the effort in Washington, D.C. On July 7, 1989, Congress ap-

proved a $15 million buy-out package and distributed the fruit to food banks and feedstock users. While the action helped to clear the year's crop, it had little effect on the wholesale price of apples (Figure 1).

The Response to the Crisis

The apple industry's reaction to the situation was typical of many crisis-response patterns. International Apple Institute and Washington State Apple Commission officials knew about the upcoming "Sixty Minutes" broadcast and, on February 6, they met with industry leaders to discuss possible action plans. They were led to believe, they said, that the segment was going to examine pesticide use in general, rather than focus exclusively on the apple industry. The group decided to postpone developing specific action plans until after the show aired.

"A Is for Apple" generated surprise and confusion, and the industry, together with the EPA, responded with a typical media management plan to disseminate information and reassuring statements through the press. The industry spent close to $1 million on full-page advertisements—"Why an Apple a Day Is Still Healthy Advice"—in leading national and regional newspapers. This effort was reinforced by the International Apple Institute's statements attesting to the safety of apples, the distribution of media kits detailing the nature of Alar, and many more press releases aimed at countering the validity of the "Sixty Minutes" and NRDC reports. Television stations aired news releases by industry experts, radios broadcast USDA nutrition statements on eating apples, the National Parent-Teacher Association issued statements, and talk-show programs featured industry-enlisted medical, scientific, and nutritional experts.

The Real Problem

According to an article in the February 1986 issue of *Good Fruit Grower*, an industry trade journal, neither the Northwest Horticultural Commission nor the Washington State Apple Commission was prepared to do anything about the problem when it was first raised. A senior official for the apple commission stated, "That's not our role. We're an advertising and promotional agency for the apple industry." He went on to suggest that the International Apple Institute was best-equipped to deal with the issue.

At the same time, the growers, who had seen the spectacular results that Alar produced, were not prepared to stop using the chemical. The problem was further complicated by the inconclusive, and often conflicting, test findings of the consumer groups, the media, and the EPA. The result was that no action was taken to organize a concerted effort to counter the negative image created by the Tree Top moratorium, the "Sixty Minutes" segment, and the National Resource Defense Council report.

Additionally, it was apparent from the decisions made during the crisis period that each of the agencies made a separate assessment of the problem and arrived at a different decision about what had to be done. The federal purchase program was initiated by an ad hoc committee, Congressional subcommittee meetings were handled by the EPA, and public relations and media management activities were directed by the International Apple Institute at the national level and by the Washington State Apple Commission at the state level. As a result, the NRDC and the partisan media were able to define and sensationalize the Alar issue.

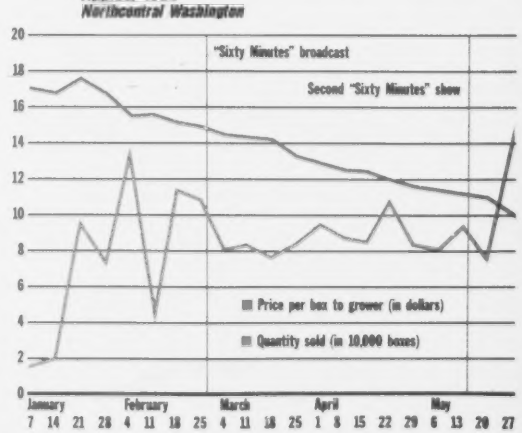
Finally, according to some industry insiders, Alar alone cannot be blamed for the crisis; there were other underlying causes. To begin with, the use of Alar had enabled orchard owners to expand apple cultivation into marginal areas. This extension was further encouraged by the existing tax laws, which granted expansion operations significant tax breaks. The result was a tightly priced market in which minor disturbances were capable of quickly becoming major financial crises. One such disturbance was that the 1989 season yielded a bumper crop, and overproduction threatened to devalue the year's harvest. The industry's problems were also exacerbated by its overdependence on one single variety, the Red Delicious. The apple's rich red color, which made it so appealing to consumers, was the result of the chemical properties of Alar.

The Response Reexamined

A response was developed only after it became apparent that consumer confidence had been rocked and that heavy losses would be inevitable. After defining the problem as a publicity issue, the industry adopted an image-management campaign to restore consumer confidence. But in seeking to rid themselves of the 1988 surplus before the 1989 crop was ready for harvest, the growers decided that they had to offer the fruit at $8 to $9 per 42-pound box, about $6 less than precrisis levels. Grower revenues dropped 3 percent (7 percent if figures are adjusted for inflation) from those of previous years. Given the tremendous cost of the image-restoration program and 1989's bumper crop, the price-cutting strategy resulted in nearly nonexistent grower profits.

Has anyone benefitted from the Alar scare? If the safety statements made by the various government agencies were indeed true and if the drop in price had been passed along the chain

Figure 1: Shipments of Washington Extra Fancy Red Delicious Apples, 1989
Northcentral Washington



of distribution, the big winner would have been consumers. The apples they were buying were as safe as, and maybe even safer than, the fruit sold before the Alar revelations.

But the real story may contain an odd twist. Apart from a momentary dip, consumer confidence, as indicated by the quantity of fruit shipped, seems not to have been much affected by "A Is for Apple." What seems to have happened was that the initial shock of the Alar presentation led retailers to slash their orders to growers, although they maintained retail price levels to preserve their profit margins. When sales did not fall off as expected, however, the retailers began to realize that consumer demand had only been temporarily shaken. They were thus presented with a unique opportunity to exploit their position in the chain of distribution. They were able to continue selling apples at precrisis prices, while receiving progressively larger discounts from the growers. And because representatives of the state's growers were completely occupied with their promotional and advertising efforts to fight the crisis, they were oblivious to the activities in the retail arena.

Crisis Management—Prevention Is the Key

As chemical technology in the agricultural sciences continues to advance, the health issues of chemically treating fruit—or any other food product—will surely come back into prominence. Organically grown apples are not yet economically feasible; one expert estimated that it costs growers 33 cents to organically cultivate one pound of fruit. Orchard owners who use pesticides and growth enhancers pay production costs of only 2.4 cents per pound. Until this cost differential is reduced, organic cultivation is not a feasible alternative.

What can be done to prepare for future crises? Models of crisis management allow us to anticipate and minimize the damage from such incidents. Managers can plan for potential crises by establishing a crisis management team, preparing an inventory of possible crises, developing a portfolio of solutions to meet each of these crises, and learning from the crises that occur in related industries.

In the Alar situation, government representatives and grower association leaders voiced the same complaint: the lack of cooperation between different constituencies in the industry and the consequent lack of an organized response. While it may be relatively easy for individual firms to set up crisis management units, it is far more complicated from the standpoint of the apple—or any other—industry. A more practical approach would be for industry members—retailers, brokers, growers, consumers, and the government—to establish strong formal and informal linkages via meetings, committee appointments, and an association of representatives from the various industry groups. These contacts would enable members to act cohesively and in concert when the next crisis occurs.

The industry association should then prepare an inventory of the possible types of crises that could occur. These can be classified into five general categories: economic (consumer boycotts), information (rumors), breakdowns (product defects), megadamage (industrial accidents), and human-initiated (product tampering). Clearly these categories are not mutually exclusive; one crisis can lead to another or several crises can take place at the same time. It is up to industry members to determine which have the highest priority.

Next, a portfolio of possible solutions to counter a crisis from each of the five categories, and combinations of them, must be developed. Preventive actions include audits (environmental impact analyses), internal repair and design (frequent product inspections and improvements), external information and communication (consumer surveys), and internal emotional preparation (industry member education).

Finally, while it is almost impossible to eliminate crises, we can learn from those that do occur. Which preventive actions worked? Which failed and why? The industry association can benefit by keeping an accurate crisis chronology and by performing a postmortem analysis. These references can later be used to evaluate and fine-tune responses to future crises.

What determines an association's probability of success in responding to a crisis? The network strength, defined as the number and age of the ties between member organizations within an industry, characterizes how effectively an industry-wide crisis can be resolved. In the Alar crisis, stronger industry and association linkages would have allowed the growers to realize their vulnerability in the distribution chain and would have enabled government agencies to comprehend the significance of the crisis to the grower. This may have led to a more united response, one that addressed the public relations issue, as well as those of pricing and overproduction.

Lessons to be Learned

In the context of a broader application for industrial crisis management, several points from the Alar crisis are worth noting. First, long before the actual crisis, repeated and persistent signals of danger were detected. Alar's link to cancer in 1973 and Tree Top's moratorium in 1986 were the first indications of trouble. Yet it's easy for an industry to ignore or purposefully block signals of risk or uncertainty from the external environment. UniRoyal, with the full support of Alar users, vowed to battle attempts by the EPA to decertify the chemical.

Next, managers should study the response patterns of the organizations and industries that have been through similar crises, discover what methods were used in preparation and prevention, and determine whether those methods worked. During a crisis, innovation is a difficult asset to harness.

Finally, short- and long-term recovery procedures must be in place prior to the crisis. It is not enough to avert the current crisis; ensuring that industry members recover fully is of equal importance. In the Alar case, the crisis may be over for the retailers and government agencies, but the growers are still hurting from overproduction and low prices, and little has been done to speed their recovery.

In hindsight, Washington's apple growers may have been able to avoid losing control over prices if they had been more aware of the impact of the Alar information on actual retail sales and of their vulnerable position in the distribution chain. Had the entire industry been prepared to respond to the bad publicity, there may not have been an opportunity for retailers to capitalize on lower wholesale prices.

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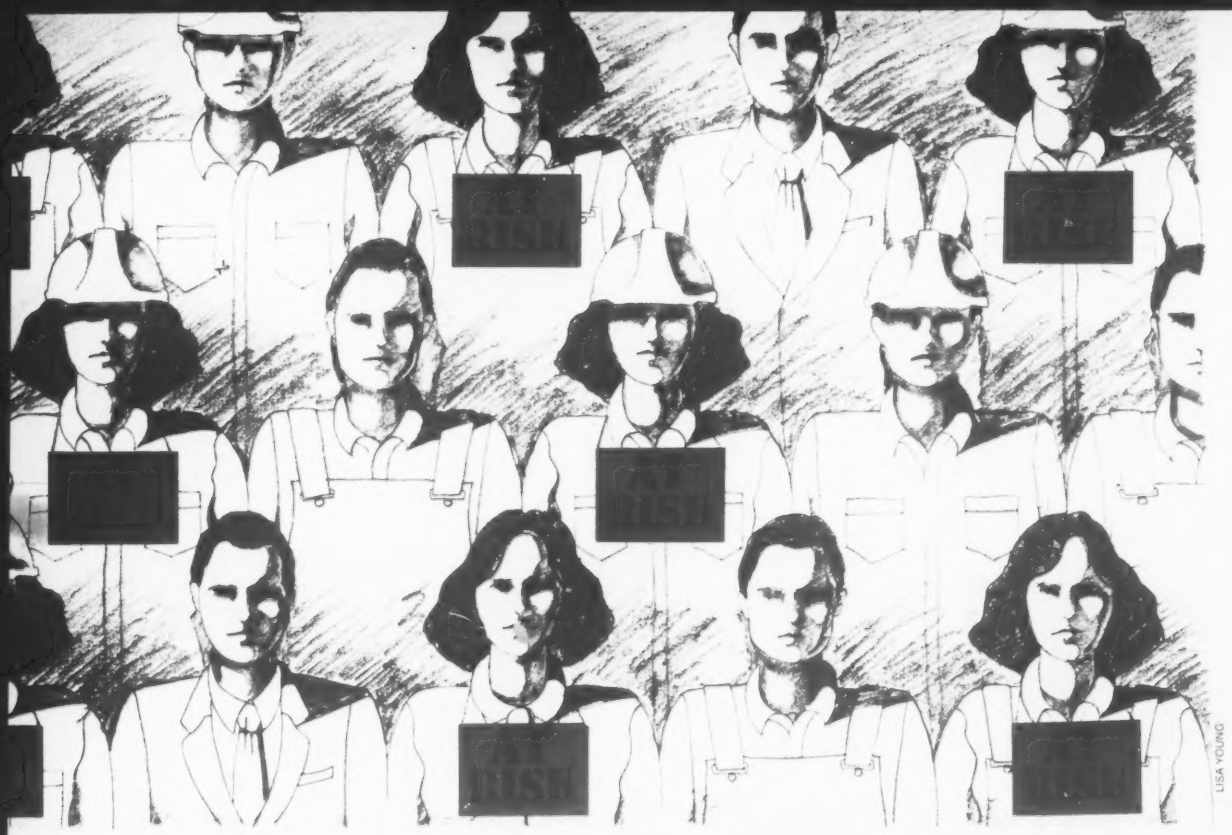
CORPORATE LIABILITY, EMPLOYEE

Today's business executives are justifiably concerned about corporate liability. The United States, wrote J. H. Barton in "Behind the Legal Explosion," is in the middle of a "litigious storm of hurricane proportions." The country now has more lawyers per capita than any other developed nation, and since 1950 the number of lawyers has grown twice as fast as the general population. Chief Justice Warren E. Burger has declared that "we may well be on our way to a society overrun by hordes of lawyers, hungry as locusts, and brigades of judges in numbers never before contemplated."

Concurrent with this legal explosion, the U.S. work force has been demanding, and receiving, greater protection of employee rights. David Ewing, an employee rights advocate, now asserts that any worker—regardless of union membership—has the right to exercise freedoms ranging from whistle-blowing to conscientious objection to unethical orders without risking his or her job, employment security, or chances for advancement.

In light of these social changes, managers are trying to minimize the legal and economic liability of their actions, while at the same time working to ensure the protection of their employees' rights. On occasion, however, the pursuit of these two goals has been exceedingly difficult. The conflict is particularly apparent in dealing with the threat of reproductive risk. In a number of major corporations across the nation, the need to minimize the legal and economic liability for potential reproductive damage is meeting head-on with the firm's desire to protect the health and security of its employees.

Johnson Controls, a Milwaukee company that makes automobile batteries, for example, has spent $15 million since 1978 on new equipment to remove the lead from factory air. According to the firm, an abiding concern for worker safety, not fear of possible lawsuits, prompted it to establish and enforce a fetal protection policy. The policy states that a female employee can work in areas of the plant where there are higher lead concentrations only if she has a written statement from a physician attesting to the fact that she can no longer bear children. The women affected by the Johnson Controls policy, however, filed a lawsuit, arguing that they were victims of sex discrimination. They lost promotions, they said, to younger men and were displaced from the higher paying jobs in the battery-making part of the factory. The U.S. Court of Appeals for the Seventh Circuit, in a seven to four vote for the company, determined that Johnson Controls was not violating federal sex discrimination laws when it barred women from the areas where there were high concentrations of lead. The court stated that there was clear scientific evidence that "an unborn child's exposure to lead creates a substantial health risk involving a danger of permanent harm."



RIGHTS, AND REPRODUCTIVE RISK

The Concern with Corporate Liability

The emergence of a litigation mentality —the willingness to go to court to settle any dispute or perceived insult—in American society is reflected in the nature of the organization procedures and policies that have been adopted by business managers. Jethro Lieberman, the author of *The Litigious Society*, maintains that since World War II firms have become increasingly immersed in legalistic procedures, and he points out that the law now pervades every aspect of managerial behavior and every decision contains a legal component.

Corporate liability costs now represent a substantial part of doing business for many firms. Figures compiled by Jury Verdict Research of Solon, Ohio, in the mid-1980s reveal that the number of million-dollar jury awards almost quadrupled in a five-year period. A company that ignores legal realities is posing a significant threat to its success, especially when it deals with such hazards as asbestos and other toxic substances. Suits have been filed against firms that have exposed workers to health risks from a wide range of materials, including diethylstilbestrol (DES), Agent Orange, and asbestos. The number of product liability cases filed in federal court rose from 1,579 in 1975 to 10,745 in 1985, and, since the mid-1970s, lawsuits against the officers and directors of public corporations have nearly doubled.

Even the threat of potential liability has convinced some pharmaceutical companies to stop producing drugs. A decade ago, for example, Merrell Dow Pharmaceuticals promoted Bendectin, the only prescription drug on the market to help pregnant women who were suffering from severe nausea. Although Merrell Dow never lost a lawsuit, the company was frequently in court, fighting allegations that the product caused birth defects. In 1983, faced with legal and insurance expenses that threatened to exceed the product's $13 million in annual revenues, Merrell Dow decided to stop manufacturing Bendectin.

Such lawsuits can threaten a firm's existence; the size of one award can be several times the value of the total assets of the firm. Legal actions have been responsible for forcing otherwise financially healthy firms—such as Texaco and Johns-Manville Sales, which was, at one time, the nation's largest manufacturer of asbestos products—into bankruptcy.

Many managers, faced with the threat of litigation, have adopted organizational policies that expressly limit the firm's legal liability. "Defensive" policies minimize the possibility of lawsuits in the areas of employee selection, job references, employee termination, genetic screening, and the treatment of employees with AIDS.

Employee Rights

In years past, employees had few rights, and their employers typically demanded total dedication and obedience. In *Capitalism and Freedom*, Milton Friedman argued

that employees and other organizational stakeholders should have minimal rights. He firmly maintained that a business had but one social responsibility: to increase profits while conforming to current ethical and legal dictates.

Since the 1960s, however, this broad range of managerial prerogatives has been challenged. More people are coming to share the philosophy that the corporation should serve its employees, customers, and the public, as well as the owners. Employees, many believe, possess certain rights or entitlements.

The current trend in common law reflects this concern for the employee. Federal and state legislation has restricted a firm's right to fire its workers for reasons related to age, gender, race, union activity, physical disability, religion, or national origin, and state whistle-blowing laws bar the discharge of an employee who criticizes his or her employer.

David Ewing and other management scholars claim that an employee should be able to object to company policy and to assert his or her fundamental rights without the fear of arbitrary and inequitable managerial retaliation. To protect the worker, some corporations have adopted an "employee bill of rights" or have outlined in an employee handbook the rights that employees may expect and exercise in the course of their employment. These generally include the following entitlements.

- Employees have a right to privacy, to be protected from the organization's invasion into their private lives and from the unauthorized release of confidential information.
- Employees have a right to a job.
- Employees have a right to protection from arbitrary or sudden termination.
- Employees have a right to equal opportunity and nondiscriminatory treatment in personnel decisions.
- Employees have a right to be informed of the information in their personnel files and to have access to those records.
- Employees have a right to an adequate level of protection from serious threats to their safety and health.

An Environment of Scientific Uncertainty

There is a degree of scientific uncertainty about the effects of most occupational exposures on the health of a worker. Nearly 55,000 chemicals are now in commercial use, and of these thousands may have potential toxic effects. Yet, at present, most commercial substances have not been evaluated for their effects on human health. This uncertainty about toxins and an employee's level or length of exposure is even greater and much more troublesome in the area of reproductive health.

A wide variety of commonly used industrial substances—including ionizing radiation, lead, ethylene oxide, and dibromochloropropane (DBCP)—have potential reproductive toxicity. The National Institute for Occupational Safety and Health, the research arm of OSHA, ranks work-related reproductive impairment as sixth on its list of the 10 major work-related diseases and injuries. Is the employer responsible for protecting the health of pregnant workers? If so, what form should that protection take?

In an environment of scientific uncertainty, managers in firms where toxic substances are commonly and continually employed are confronted by the specter of legal and economic liability if a female employee gives birth to a handicapped child. As N. G. Stillman wrote in "Women in the Work Place: A Legal Perspective," "the media exposure and adverse publicity arising from a personal injury lawsuit involving an injured child can be far more devastating for a company than publicity about an employee discrimination action. Additionally, the dollar liability from such a damages lawsuit can be astronomical compared to an employment discrimination backpay award."

Proof of Sterilization

In the face of possible lawsuits, a number of companies—including such major employers as Allied Chemical, American Cyanamid, B. F. Goodrich, Dow Chemical, DuPont, Exxon, Firestone Tire and Rubber, General Motors, Monsanto, and Olin Corporation—have implemented fetal protection policies. While there are variations among policies, in general they hold that all fertile women, typically between the ages of 18 and 50, will be excluded from toxic work environments—regardless of their marital status, use of birth control, or childbearing intention—and will be allowed to continue employment only with proof of surgical sterilization.

The troubling issue of how to deal with reproductive hazards has recently emerged in high-tech companies such as Digital Equipment Corporation (DEC) in Hudson, Massachusetts. In response to a recent study of the miscarriage rate at DEC, which, at 39 percent, was nearly twice the national average, company managers adopted a fetal protection policy and began recommending it to other firms within the industry. The high miscarriage rate in the semiconductor industry prompted most firms, including AT&T, to implement fetal protection policies of their own, although the Semiconductor Industry Association, in a letter to the American Civil Liberties Union, wrote that no companies have instituted "automatic removal employment policies."

Ironically, the haste that some companies have shown in adopting these policies for legal and economic protection may have created even greater problems for them. Many of the policies speculate about potential reproductive health hazards and were formulated too quickly once attention was focused on the dangers of fetal exposure to toxins. A 1985 Office of Technology Assessment report indicated that the fear of liability may be unfounded: not one lawsuit has been won on behalf of the children born with occupationally induced birth defects nor are the courts likely to hold employers responsible for such injuries. The report concluded, "For the most part, reproductively damaged workers have very limited access to redress against their employers through the courts." The use of fetal protection policies has only served to bring charges of discriminatory practices against many firms.

Further, the growing reliance on fetal protection policies by the chemical, automotive, and pharmaceutical industries in the last decade has serious and unexplored implications for the rights of employees. Many female employees object to the policies because they feel that their privacy has been invaded. A fetal protection policy, they argued in a brief prepared by the American Civil Liberties Union for the Woman's Rights Project, "subjects all women to special scrutiny about their child-bearing intentions, sexual activities, and birth control methods and, thus, operates to invade their personal privacy in a most sensitive area. Any woman who remains in a restricted job is forced, per se, to publicly reveal her sterility."

Fetal protection policies, the opponents claim, reflect certain stereotypical assumptions about women. They imply that women are always potentially pregnant and thus must be treated as if they are actually preg-

nant, that women are unable to prevent pregnancy, that women alone are responsible for the health of their offspring, and that harm to unborn children can only occur through maternal exposure. Such regulations also reject the female worker as a person with options. Some policies require surgical sterilization regardless of whether the women has chosen not to have a family, her partner has had a vasectomy, or she is using birth control.

Do women have the right to expose themselves to potentially harmful situations? Can they accept the risk for themselves and for their offspring? Women may, in fact, choose to accept the risk. In the United States, 71 percent of all women between the ages of 20 and 44 were part of the paid labor force in 1985. Approximately 32 million women held full-time jobs. If all industries with toxic work places were to adopt fetal protection policies, 20 million jobs would be off-limits to women.

The Pressure to Conform

In the case of American Cyanamid, economic pressure was enough to compel five women in the pigments division of the firm's Willow Island, West Virginia, plant to have themselves sterilized to keep their jobs. The company's policy, adopted in October 1978, prohibited women of childbearing age from working in the department on the grounds that a woman's exposure to lead might harm a future fetus.

The starting salary in the pigments division was $225 a week, plus overtime. The company said that it offered to pay the women at their old salary rates for 90 days, then it transferred them to "utility" jobs paying $175 a week (without the possibility of overtime extras) or to jobs in other departments, where they could, perhaps, earn enough seniority to return to their former wage levels. If jobs weren't available in the departments where there was no toxic exposure, the women were laid off. For the 30 women affected by American Cyanamid's policy, there were seven job openings available. The company denied that the women were coerced into sterilization.

Women at Idaho's Bunker Hill Company, a mining firm that operated a zinc refinery, fertilizer plant, and a lead smelter in Kellogg until 1981, felt similar economic pressure. In April 1975 corporate management, fearful of possible damage to the unborn children of female workers who were exposed to lead and leery of possible lawsuits against the company, enacted a fetal protection policy that prohibited fertile women from working around lead. The women who wanted to work in lead-exposure areas of the company were required to present a letter from a physician attesting to their sterilization. After Bunker Hill instituted the policy, 29 women were reassigned to the mine yard maintenance crew to pick up gum wrappers, dust shelves in warehouses, and post signs on the plant grounds. Because they were transferred out of their departments, the women lost their departmental seniority. Many reported a sizeable drop in their monthly income, for the new positions lacked night and holiday work, overtime opportunities, and incentive earnings. Because there were few jobs outside of the Bunker Hill Company in the town of Kellogg, the women reported that they felt tremendous economic pressure to consent to sterilization. At least three underwent sterilization procedures within three months of the policy's implementation so that the company would allow them to return to their former jobs.

Women aren't the only ones who object to fetal protection policies; male workers also find such policies discriminatory. Is it permissible to allow men to work under conditions that may adversely affect their health, while providing fertile women with protection from toxic hazards?

What Can Managers Do?

Fundamentally, managers must seek to balance employee rights against corporate interests. While corporations unquestionably have the right to protect their assets and reputations, an employee's right to privacy and a safe and healthy work place must be given due consideration.

In the area of fetal protection, managers need to thoroughly investigate the work place conditions that threaten the reproductive functions of either sex in any way, fully inform employees about health risks, and explore a gender-neutral range of alternatives before adopting fetal protection policies. OSHA has suggested several alternatives: the implementation of engineering controls, protective equipment and clothing requirements, and work adjustments, including rotation to nonexposed or lower-exposed jobs.

If, after careful scrutiny, these alternatives are deemed inadequate, fetal protection policies should be considered. To protect the rights of all workers, however, the policy should apply to both sexes, unless management can present evidence to justify placing restrictions solely on women. Furthermore, managers should establish a policy that meets all the hazards known to exist in the plant. And, most important, management should tailor the policy to protect only those affected by the hazard and should make every effort to not exclude more workers than absolutely necessary. If certain employees must be excluded from toxic work places, the employer should seek to maintain their pay levels and job status in another part of the corporate structure. The employer should also develop an accompanying statement to the effect that the company in no way encourages sterilization and does not guarantee employment should sterilization be performed.

Finally, managers need to set up a formal internal mechanism for resolving these and other disputes between corporate economic interests and employee rights. An effective grievance procedure, for instance, would help corporations protect themselves against the possible legal actions that could result from the implementation of a fetal protection policy and would minimize the possibility that the firm violates an employee's civil rights. Organizations typically find that they are not only more secure legally and economically with a formal system of dispute resolution, but that their employees feel more secure once such a mechanism is in place.

Any issue that involves a conflict between corporate liability and employee rights will be difficult to resolve. In the area of reproductive risk, however, arriving at a satisfactory balance on an issue that is shrouded in medical uncertainty promises to be exceedingly difficult. Yet, even with the smallest possibility of fetal damage and legal liability, managers in toxic work environments would be well-advised to begin to design a policy that deals with reproductive risk and, specifically, to explore alternatives to fetal protection policies. A carefully researched policy can take into consideration many of the ethical, social, and economic concerns expressed in fetal protection policies, while protecting the company from possible litigation.

Donna M. Randall is an assistant professor of management and systems at Washington State University.

Gallery

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At one time, fish were plentiful (circa 1915). Now there are plenty of fishermen.

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Homelessness: The Economic Costs of a Social Problem

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Japanese Subsidiaries and the Americans Who Work for Them

Commentary

Education and Health Care—The Policy Issues for the 1990s

While we don't have a crystal ball to predict the future, it is clear that our need to respond to international competition and our desire to maintain a high quality of life will drive our public policy in the next 10 years.

The formation of the European Community as a united economic power in 1992 will provide both opportunities and challenges for Washington, as will the likelihood of increased access to the Soviet Union and Eastern Europe. At the same time, we will continue to face intense competition, particularly from countries on the Pacific Rim, and the preeminence of our resource-based industries (including forest products, fishing, and agriculture) will level off or, in some cases, diminish.

For many companies, the ability to adapt to these marketplace changes will be the key to survival. To maintain and improve our competitive edge, we will have to continue to add value to such commodities as food and wood products. We will have to fight just to hold our existing market share, and we'll need to better target our future market development efforts.

Effective international competitors are those who make the best use of their resources, including the intelligence and skills of their work force. That's why our ability to be competitive is directly related to the quality of our education and training system, and the health of our work force and our families.

We have made major improvements in Washington's education system in the past few years—especially in higher education, where we've invested in faculty salaries, instructional support, and new facilities. The need to promote entrepreneurship and turn research into useful products and services will force us to keep moving forward.

Similarly, we have begun a major reform movement in K-12 education, with initiatives designed to improve teacher education and training, increase local control, and provide greater accountability. Our efforts to improve the K-12 system must be

on-going, a recognition of the fact that education reform is a long-term undertaking.

Higher education and K-12 are crucial to a well-prepared work force, but we need to focus, too, on job training and retraining efforts. During the next decade, the expected shortage of workers and the increasing skill requirements of most jobs will provide us with an opportunity to address the problems of economic development and the growing underclass.

The number of new entrants into the labor force is expected to fall 50 percent in the next 10 years, and an increasing proportion of the new entrants will be women and minorities. Through improved and expanded training programs, we can begin to include those who traditionally have been left out of the labor force and make our economy more competitive.

We are already seeing that some businesses in Washington are not getting the skilled workers they need to be competitive. A recent survey by the Small Business Improvement Council of 3,000 small businesses indicated that one-third of the respondents could not find enough skilled workers in their communities.

Within the state government, 45 percent of the work force will be eligible to retire in the next eight years. We, too, have a need for an efficient and effective adult education and training system. By improving our training efforts, Washington State will have the opportunity to combine sound economic policy with good social policy.

In the area of human services, health is likely to emerge as the dominant issue of the 1990s. Part of this increased emphasis on health care is purely economic: health costs are rising faster (11 percent to 12 percent a year) than any other item in the consumer price index. Meanwhile, our international competitors spend from 5 percent to 8 percent of their gross national product on health care and yet have far better access to care and lower infant mortality rates.

As the cost of care goes up, more people find themselves unable to afford health insurance or to acquire coverage through their employers. At the same time, we now know that prevention, early diagnosis, and timely treatment not only make sense economically, but influence our ability to contribute in the work place and in society.

While we need to remain competitive to sustain a growing economy, growth—and the changes that come with it—could threaten our quality of life unless we handle it wisely. Our task will be to manage growth as effectively as possible—a task that will require an integrated approach to transportation, development, and the environment.

Significant efforts to preserve critical resources, such as wetlands and old growth forests, are gaining momentum, and conservation will play an ever-increasing role in our efforts to create a sustainable environment. We'll need consistent and on-going safeguards to minimize the waste of our natural resources.

As the debate on these policy issues moves forward, there will inevitably be sharp disagreements on possible solutions. Lawsuits and political stalemates won't resolve these disputes. Cooperative efforts, however, can produce needed action.

Booth Gardner
Governor of Washington State

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PERCEPTIONS OF MENACE

THE HOMELESS AND THE DOWNTOWN ECONOMY

BY RICHARD ROTH

America's 3 million homeless are perennial and classic social outcasts, especially in the downtown urban cores where they congregate. In Seattle, there are as many as 5,000 homeless people on the city's streets on a given day. Solutions of all imaginable types have been offered—from more beds in shelters to substance abuse treatment programs and from low-cost housing to job training—yet the number of homeless keeps growing.

The sociological dimensions of this massive waste of human resources has been studied, probed, and documented, but the flip side of the problem—the economic losses traceable to homelessness—hasn't gotten the same attention. Putting the hidden economic costs of the problem on the table alongside the more obvious social ones certainly complicates the issue and may sound crass or heartless. Yet even a preliminary examination of the economic dimensions of the problem illustrates that homelessness is a more far-reaching and consequential problem than it is commonly believed to be. Economic impacts sometimes attract lawmakers' attention long after the social case has been made and perhaps serve to strengthen society's determination to solve a man-made problem, which is, we hope, amenable to man-made solutions.

A Younger, Aggressive Crowd

Until the early 1980s, the older, late-stage alcoholic male—the bum or drifter or hobo—who sat draped over a park bench, brown bag in hand, was a fixture in Seattle and elsewhere. But, according to Jan Drago, the co-chair of the Mayor's Task Force on the Homeless, the street scene changed in 1984. "The Skid Row chronic alcoholic," she explained, "was replaced by a younger, more aggressive, often drug-addicted crowd." Drago, who owns an ice cream shop in the Pike Place Market, said that she and her customers, particularly those who preferred outdoor tables, were frightened by the change, and tourists were—and still are—"shocked, both by the mere fact of seeing so many street people in Seattle and by the aggressiveness of their behavior."

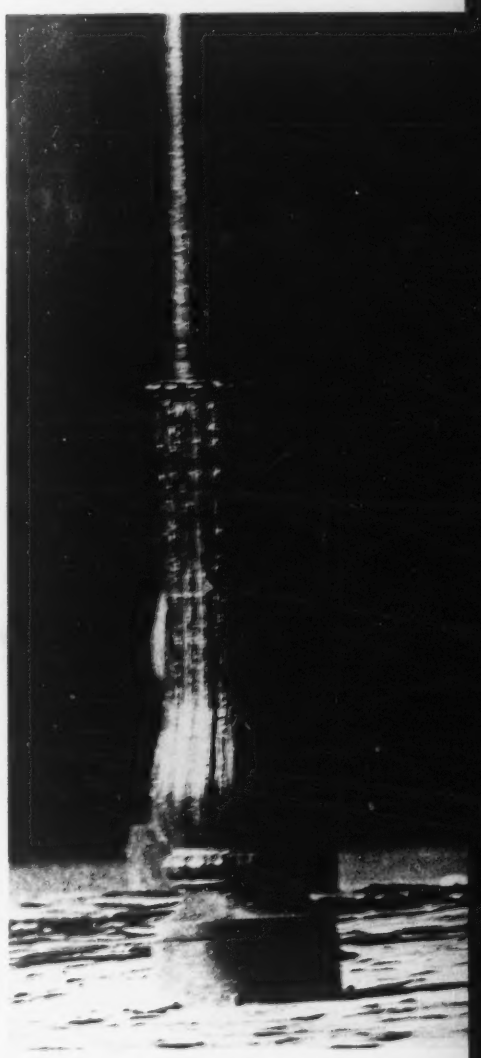
Drago traces this permanent shift in Seattle's homeless scene to four main sources: the arrival in Seattle of thousands of homeless driven out of Los Angeles for the 1984 Olympic Games and out of San Francisco by the Democratic Convention, the first cases of single mothers and families forced onto the street by domestic violence or the worsening economic conditions caused by Reaganomics, the first wave of deinstitutionalized mental patients, and the emergence of a local open-air drug market, including the appearance of drug-dealing Haitians and Cuban refugees from the 1980 Mariel boatlift.

These demographics underline the fact that the word *homeless* is a generic term for an extremely varied population. Older, late-stage alcoholic males are no longer a majority of the street people, at least according to the myth-exploding findings of a 1989 City of Seattle Human Services and Strategic Planning Office study, *The Status of Homelessness in the City of Seattle*, and a recent report of the shelter population by Lewayne Gilchrist, an associate professor at the University of Washington's School of Social Work. These investigations reveal that:

► Nearly one-third of the homeless are single mothers and their children, often fleeing victimization or domestic violence. Fifty-four percent are minorities.

► Many are unemployed or hold minimum-wage jobs that place them below the poverty line. Nearly a quarter of shelter users had jobs. The city report stated that "homelessness is a fluid phenomena, with many individuals and families moving in and out of housing or from shelter to shelter during the course of a year."

► A significant number, perhaps as high as



50 percent, are seriously disabled, either by mental illness, physical impairment, or alcohol and drug abuse.

► Many of the homeless are runaway teenagers; 5,000 runaway cases are reported in King County each year, and about half of those youths join the street population. Teenage runaways often become gang members, drug dealers, and shakedown artists.

Sadly, the people who get the most public attention—the threatening panhandlers, the open-air drug dealers, the large groups of menacing young people, the out-of-control alcohol abusers falling down drunk in doorways and urinating in alleys—are often street people who, in effect, give the more victimized homeless—the underclass, the battered spouses, and the single mothers—a bad name. In fact, as Ann Alexander, the chair of the Pioneer Square Business Improvement Area alliance, stated, "the homeless are terrified of these people coming in, [and] of this antisocial, aggressive, overt violence."

Alice Quaintance, a graduate student in the UW Department of Geography who is writing her master's thesis on the homeless in Seattle, echoes Alexander's claim. "The homeless are an edgy group of down-and-outers," she said. "The downtown scene of skinheads, sometimes-hostile police, predators, and crack users is very frightening to them. Unlike the street people, the homeless didn't come downtown to be scary. They're the ultimate scapegoats, victims and self-victimizers."

The Economic Drain

When middle-class downtown employees, employers, shoppers, and tourists encounter the many faces of homelessness on the street, they lack the sensitivity, the patience, or the context to calculate various degrees of individual worth and victimization in those confronting them. On the whole, everyone gets lumped together and

NICK GUNDERSON

called "homeless." The homeless are perceived at best as a constant irritant and at worst a discouraging menace. This public perception translates into a major economic drain on the downtown economy. Retailers, for example, lose potential sales and have to pay increased security costs. Service providers, such as law, architecture, and advertising firms, are faced with the prospect of reluctant or lost clients. Unnerved or fed-up employees seek work elsewhere in the city. Commercial real estate managers lose revenue on leases and suffer lower occupancy rates because of the street scene, and convention promoters must steer visiting planners through a *cordon sanitaire* of downtown streets to avoid exposing their clients to aggressive panhandlers or drug dealers.

DAN LAMONT

The economic impact of homelessness can only be gauged indirectly, by inference and correlation. Little or no formal study has been done on the subject, according to urban specialists David Hodge of the UW's Department of Geography and Avery Guest of the Department of Sociology. Hodge, while conceding that the homeless do have an effect on the downtown business core, speculated that economists and urban geographers haven't tried to quantify the impact because the numbers are fugitive. In fact, it may be that we're not talking about lost sales or revenues, he said, "just monies that go to the suburbs instead."

It was possible for us to piece together, using interviews and reports, a jigsaw puzzle-like picture of the problem—with lots of missing pieces. Unfortunately, we found that the territory was made treacherous and inaccessible by the unwillingness of sources to speak candidly or have their names used. One small business owner conceded, "Frankly, I'd fear retaliation if I complained too much about the people who congregate in front of my store every day." Many of our sources expressed concern about sounding heartless and insensitive, and others were clearly uneasy discussing economic impacts. They preferred the tried-and-true ground of the social services aspects or proposed solutions. Others were concerned about harming downtown's image. As one leasing agent stated, "Why should I go on record talking about tenant fears about the homeless in Pioneer Square when I believe the fears to be largely groundless? I have to make a living renting out space down there."

In all fairness, two of the chief downtown Seattle spokespeople, John Gilmore, the president of the Downtown Seattle Association (DSA), and Ralph Goodman, the head of the convention planning division of the Seattle-King County Convention and Visitors Bureau, discount the economic impact of homelessness. They cited a recent DSA-funded survey that ranked shoppers' concerns about downtown Seattle and gave hassles with street people a low rating. As additional evidence, Gilmore and Goodman pointed to the increased availability of low-income housing in the downtown core, robust 1989 Christmas sales, and the merchants' own perception that the homeless population is shrinking.

Despite such positive signs, however, Seattle's homeless problem is not going to disappear soon. What follows, then, are accounts of the financial consequences and fears of homelessness on the part of the employers, employees, commercial real estate salespeople, small retail businesspeople, convention and tourism planners and officials, and downtown business associations that we contacted.

An Image Problem

Property managers readily admit that the perceived difficulties of locating downtown exert a bottom-line impact on leasehold income and occupancy rates. Although the negative perceptions obviously include traffic and parking, merchants and service providers, when asked what drives them to dream of relocating, mention street people more often and with more vehemence. "When we're trying to lease downtown space to our out-of-town prospects—particularly the Japanese," one manager explained, "the advantages that we have to offer are hurt by the perception of hassle in the street. It is definitely an element in their decision-making."

Tom Gomez, a Pioneer Square realtor, lamented that "rents are substantially lower in remodeled Pioneer Square buildings than in buildings with similar amenities and facilities elsewhere in the area. We've gotten clobbered down here repeatedly because of the perception problem." Gomez pointed out, for example, that "anytime there's a local or national story about

the homeless, you can depend on the local papers to run a page-one photo of some poor guy sprawled out in Pioneer Square. [That type of] coverage really hurts our image, especially since things are improving so much down here."

Putting a price tag on this image problem is next to impossible. Few developers or realtors will point a finger at the homeless and say, "You are costing us money." Yet our sources agreed that, especially in certain parts of downtown, the street scene almost always gets mentioned as a negative factor in lease negotiations. If the street scene were less visible, the realtors said, rents would be between 2 percent and 10 percent higher in Seattle's core. If we conservatively estimate the image effect on rents at 5 percent and say that the 23 million square feet of downtown office space leases at $17 per square foot, the annual impact of the street scene comes to nearly $20 million.

A General Atmosphere of Intimidation

Part of the real estate lore of Pioneer Square includes the litany of tenants who have already left or are thinking of leaving. Citywide vacancy averages are 14 percent overall and 6.9 percent for retailers; in Pioneer Square, vacancy rates are generally 10 to 15 percent higher. Scores of attorneys, accountants, and consultants have left because, as one property manager put it, "Clients complained that they just didn't want to come down because they didn't want to be corralled by street people." One giant midtown law firm reported that the number of job applications it receives from Pioneer Square attorneys is much higher than the number from other parts of town, and that almost all the job-seekers say they feel that they must get away from the Pioneer Square street scene to keep clients, staff, and a sense of personal safety. "We know [that homelessness] impacts people's lease decisions," conceded Tom Gomez, "and that costs somebody something."

Pioneer Square's two main employers, the Cole & Weber advertising agency (123 employees) and the NBBJ Group architecture and consulting firm (180 workers), have both complained about the way their employees are accosted by street people, the smell of urine in doorways and alleys, and the neighborhood's general atmosphere of intimidation. The problem is especially acute for those staffers who do not qualify for the much-coveted Pioneer Square parking slots and have to run a daily gauntlet to and from their bus stops.

Again, estimating this cost is difficult. But assuming that one 40,000-square-foot tenant vacates a customized Pioneer Square space, the lost income—simply in terms of leasehold revenue, not including downtown shopping revenues—would be close to $1 million a year. No one knows how much revenue is lost when businesses decide to locate in the suburbs rather than downtown, but, as a Coldwell Banker broker said, "When you consider having to wade through gangs, prostitutes, drug dealers, and panhandlers to get around town and to and from work—well, the downtown street scene doesn't charm anyone away from Bellevue. At least two of my potential leasees decided they just didn't want to subject their employees to this kind of rough element."

Perhaps the most convincing expression of leaseholders' feelings about the tumultuous Seattle street scene was documented last year, in a Seattle Department of Community Development survey of downtown businesses. The respondents weren't hesitant to complain about street people. In the open-ended comment section of the survey, nearly 65 percent of the responses were directed squarely at street people. "The security of our people and our building is of great concern," wrote one professional service operator. "We *will* move if the situation gets much worse. We need more police and better intervention policies." A central city financial services company complained that "it's almost impossible to get employees to work a second shift. They worry about how they'll get home in the late night hours." "Why do our employees have to be afraid just waiting for a bus?" asked one firm. Another respondent wrote, "Either provide Pioneer Square with a significantly expanded police presence and greater sense of security, or say goodbye to the legitimate businesses, put a cyclone fence around [the area] and use it for all the druggies, bums, and petty thieves." "Many customers feel the area is unsafe to shop in," wrote a midtown retailer. "Thank God they make it here despite it." "The problems with street people have made the last five years a horrible experience for us," related a departing Pioneer Square professional firm. "That's why we've sold the building."

Few developers or realtors would point a finger at the homeless and say, "You are costing us money."

Increased Security Costs

The relationship between street people and increased overhead is expressed in employee turnover and higher security costs. Employees, of course, leave for many reasons and sometimes blame the homeless (the ultimate scapegoats) to mask their real motives for departure. Yet personal safety is a priority for many people and some undoubtedly stop working downtown because they just get fed up with the street people who accost them.

Security costs information is available, but only anecdotally. One Pioneer Square merchants group reported that its security costs have risen 30 percent since 1986—they now are 15 percent of its budget. A major downtown leaseholder said that because of the number of daytime street people encounters and a marked increase in nighttime criminal activity in and around its three buildings, the firm now spends about 30 percent more for security than it did in 1984. Many retailers say they must hire extra staff to deal with shoplifters and street people. One downtown travel agency, for example, had to hire an extra clerk to watch for street people who shoplift and harass customers, and reported that this extra employee increased its annual operating budget by 20 percent.

Of course, much of the increase in security costs—and the fear that prompts the additional expense—is caused by those within the drug and gang scene, not by the homeless. But the mere presence of the noncriminal homeless affects the ambience of many retail businesses. Because customers are easily discouraged, owners often have to resort to the "bum's rush" in escorting the homeless off their premises. "Most of the homeless people who come in here are harmless," one Pioneer Square

gallery owner explained, "and we even try to do little things to help them. But they really do scare off browsers. We've pretty much managed to get the word out that the homeless really shouldn't be in here, but, yes, it does affect our staffing and it's clearly a negative impact on our business."

The Price of Doing Business

Of all the economic impacts of homelessness, the total for foregone sales is the most elusive. We do know that the retail sales of downtown Seattle's small businesses declined 8.7 percent in 1989—a drop that was no doubt due to parking and construction nightmares. But how much of that decrease can be attributed to the street scene? "Sure, lots of people tell me they don't come down here because of their fears," a Pike Place Market retailer observed, "but I couldn't even begin to put an amount on the money I've lost. It's just one of the prices of doing business here."

A recent survey in Nashville, Tennessee, a city with a homeless population that is contained in one small geographic area, revealed that nearly a third of the 350 respondents singled out fears of street people as a major reason they don't come downtown more often. If you assume that even 10 percent of Seattle's apprehensive shoppers stay away from the central business district because of their fear of the street scene, the loss in annual downtown sales could be as high as 3 percent, or about $30 million (given estimated 1989 gross retail sales of $1 billion for downtown Seattle).

No Vacation for Conventioneers and Tourists

Promoters of Seattle's $250-million-a-year convention industry concede that they must lead visiting convention planners on a circuitous route through Pioneer Square and the Pike Place Market, trying to minimize panhandling incidents and the number of times they have to step over prone bodies on sidewalks. "Let's face it," said Ralph Goodman, the convention planner for the Seattle-King County Convention and Visitors Bureau, "if you're trying to decide between Seattle and some Arizona resort and you've been upset by the homeless scene in Seattle, it's going to be at least an unconscious factor in your decision to go to the destination resort."

"The street scene is the number one concern of every out-of-town travel writer I deal with," confirmed Louis Richmond, the public relations director of the downtown Sheraton Hotel. "I see the same writers coming back after being away for a few years and they are really shocked. They ask me, incredulously and with some anger, 'What are you doing about this?' "

Like Goodman, Richmond admits that he steers writers around specific downtown war zones, especially those along First and Second avenues. "But it's now impossible to avoid these hoards," he said. "It's a problem and it's an embarrassment." Richmond is concerned about the homeless, but he also has to be a realist when it comes to promoting Seattle. "The last thing tourists or conventioneers want to do when they leave home is confront another city's problems," he stated. "We work on the elementary concept that a convention is also a vacation, a time when you leave your problems behind. Here, conventioneers get all of society's problems thrown right back in their face several times a day."

No planner would ever say he had cancelled out because of all the panhandling and street people," Goodman said, "but if a planner has one negative experience, that experience will affect his decision." Richmond believes that the downtown homeless population is growing and argues that "eventually we're going to lose a lot of money and tax revenue if we don't address it in some drastic way." (As an aside, Richmond noted that, while the Sheraton is often surrounded by the homeless, the hotel faces a severe labor problem: "Isn't it ironic that we can't get anyone to wash dishes?")

Pittsburgh Magazine writer Bruce Dobler, here to write about why Rand McNally chose Seattle to displace Pittsburgh as America's "most liveable city," admitted that he "was shocked, really disturbed," by Seattle's homeless problem. "I got hit up for money 10 to 20 times a day—and not just on First Avenue," he said. "I thought that there's something terribly wrong with the world if you have to run a gauntlet of pregnant, hungry, sometimes vicious-looking homeless people on your way to the Four Seasons Hotel. It makes you feel horribly guilty. You have to have a heart as big as Mother Teresa's or none at all." Although he was won over by Seattle, he warned his readers that the city sometimes seems overrun by street people.

Even if one average-sized trade show or convention per year decided against Seattle because of the street scene, the cost to the city could be as high as $4 million, including $616,000 in lost retail sales, according to the Seattle-King County Convention and Visitors Bureau. The bureau's assumptions are based on its surveys, which indicate that an average trade show at the Convention Center draws 3,500 attendees, and each participant spends $1,165 at the convention and another $176—four times the national average—on retail sales.

The Social Response

These examples of the economic consequences of homelessness are not meant to bash the homeless. But, after all, to shoppers or workers or conventioneers, it's immaterial whether the fifth person to approach them on a given day is a mental

"Why do our employees have to be afraid just waiting for a bus?" asked one downtown firm.

patient, drug dealer, runaway teen, or poor mother down on her luck. It's impossible to be neutral when you perceive yourself as an unwilling combatant in a war zone. As in politics, perceptions and myths become reality in America with astonishing speed and enduring consequences. And the perception of many Seattle businesspeople and unnerved shoppers and visitors is that homelessness is more than an evening-news, morning-paper problem in Seattle—it's a daily safety concern and a hidden drain on the downtown economy.

Seattle's homeless problem has generated a variety of social responses.

► **Band-Aid, Safety-Net Approaches.** Emergency and transitional programs such as shelters and service centers for runaway youths, battered spouses, and children, and day care and medical units (including alcohol and substance-abuse treatment services) for the homeless are being coordinated by the city, King County, United Way,

and other private agencies.

► **Housing and Other Infrastructure.** The need for affordable housing stock for the homeless is clearly at an all-time high. Groups such as the Downtown Housing Services Council, the Seattle Housing Resources Group, the Seattle Housing Authority, and the Human Services Roundtable are trying to fill the bill with recent projects like the Eugene Hotel on First Avenue, the Kingsway Hotel, and the Olive Tower. These housing alternatives, which provide an estimated 1,000 new living units, cost $30 million.

► **Cuts in State Subsidies.** One of the real magnets that attracted the homeless to Seattle was the General Assistance for the Unemployable (GAU) monthly check of $314, which was available to recovering alcoholics and others. Elimination of the GAU Program in 1989 helped at least stem the migration of homeless from California.

► **Downtown Merchants' Initiatives.** Such groups as the First Avenue Improvement Project, Cornerstone and Harbor Properties projects, the Pioneer Square Business Improvement Area, and the Downtown Seattle Association are working with the homeless and service agencies to set some ground rules for appropriate behavior, offer some amenities, and generally make life as tolerable as possible for the homeless. One 1989 program initiated by the Downtown Seattle Association, business groups, and the mayor's office was the "Give A Hand, Not A Handout" promotion. This public information campaign urged the public to refrain from giving handouts to street people because such money "is used to support alcohol, drugs, and other habits of destructive lifestyles. With panhandling, everyone loses." Instead, the program persuaded people to donate to the social service agencies that care for the homeless.

Every program, however, stops short of the complex irony described by the Sheraton Hotel's Louis Richmond—the failure to get the homeless into the work force at a time when we are confronted by labor shortages. The opportunity cost of not having these thousands of people working is one of the largest hidden economic burdens of homelessness—and its the least amenable to quick fixes. Richmond isn't saying that the homeless are a cheap, exploitable labor force ideally suited for the minimum-wage jobs no one else wants. Rather, the larger point is that until society sees homelessness as an economic issue—one with costs as well as challenges and opportunities—it won't be solved. If we simply add more housing, police, and detoxification units, we're using a piecemeal approach to address a systemic problem.

The Public's Responsibility

In homelessness begins responsibility. A large part of that responsibility, of course, must be assumed by the homeless. But a responsibility of another kind rests with the public. Employers and employees, shoppers and retailers indicate that the non-homeless population, in response to what it sees on downtown streets, goes through stages of fear, loathing, sympathy, cynical indifference and avoidance, and, finally, numbness. The businesses that told the city they were leaving the Pioneer Square district because of the problem are displaying the extreme outcome of this gradual process of a loss of charity or social imagination. "We shouldn't let the behavior we see on the streets undercut our desire to help the homeless," said Alice Quaintance, the UW graduate student. "There's no substitute for familiarity and learning someone else's attitude. People who talk to them develop a much more sympathetic attitude toward the homeless."

REX RYSTEDT

If the economic impact of homelessness is anywhere near as large as our rough examples indicate, homelessness is a pocketbook issue. And that realization may, in fact, be the best news of all for the homeless, for it often seems that no serious social problem gets solved until and unless the middle class perceives it as an economic or health threat.

Richard Roth is a Seattle-based writer.

REGION WATCH

Economic Developments in the Pacific Northwest

Although the fourth quarter of 1989 suffered from the economic effects of natural disasters and the Boeing strike, the first quarter of 1990 was buoyed by a short winter season. In sum, the national economy is showing modest growth. Our forecast panel members, however, continue to predict a year of sluggish economic growth and persistent inflation (Table 1). Even after seasonal variations for food and energy are excluded, inflation remains high, especially within the service sector. Labor costs are also up: the employment-compensation index for nongovernment service workers rose 5.2 percent for the year ending in March, compared to a 4.6 percent increase a year earlier. Despite the Federal Reserve Bank's efforts to cut inflation, the expectation that inflation will rise (as measured by long-term bond yields) has intensified. Wringing inflation out of the economy can be a costly experience, as we know from the early 1980s, when such efforts brought anemic output growth and high unemployment. In the absence of a recession, inflation can be reduced only when output grows more slowly than the economy's rate of productive capacity.

Economic growth in the Pacific Northwest was unmatched by the rest of the nation in 1989. All three states excelled in terms of personal income growth, employment gains in the manufacturing, construction, and service sectors, immigration, housing starts, and lending activity. But the signs point to 1990 as a year of transition. The national economy's sluggish growth influences capital spending and exports, which are crucial to both Washington and Oregon. The potential obstacles facing the region include defense cutbacks, the stabilization of aerospace employment, and the supply-induced declines in lumber and wood products.

As a result, manufacturing employment growth—which was the distinguishing feature of the region during the last few years—will be noticeably subdued in 1990 and 1991, especially in Oregon and Washington. The exception will be Idaho, where there's robust growth in the state's dynamic high technology sector and renewed vigor in its natural resource-based industries.

For this issue of *Pacific Northwest Executive*, we asked our forecast panel members to select the regional manufacturing sectors that they thought would experience the greatest employment growth in the next five years. They chose electronic and other electrical machinery, nonelectrical machinery, and printing and publishing. They also predicted that forest products (lumber and wood, and pulp and paper) and primary metals would suffer substantial employment losses during the same period.

Everyone's watching to see how timber allocations on federally managed forests in the Pacific Northwest will be changing. If the federal interagency committee's recommendations to protect the northern spotted owl's old-growth habitat are adopted, the economic impact on the region's lumber and wood products industry (the Northwest's second largest manufacturing industry) will be immense and long-lasting.

Of owls and lumberjacks

The "nation's woodbasket" had been bracing for significant harvest reductions—on the order of 17 percent on national forest land—in the next 10 years as the result of plans devised under the 1989 National Forest Management Act. Now, the forest products industry's worst fears may be realized: the recommended set-asides would amount to a 48 percent decrease from current timber harvest levels on Forest Service and Bureau of Land Management forests.

The future for the industry's timber-dependent communities—even before the latest round of cuts—hadn't been exactly rosey. Since the late 1970s, the industry's productivity gains have been significant. In 1979, 4.5 workers on average were needed to produce a million board feet of lumber; today that amount of lumber is milled by only 1.5 workers. In addition, the industry and government both projected a decline in the supply of private timber in the 1990s, a shortfall that would make the region increasingly reliant on public sources and uncomfortably vulnerable to supply shocks.

The region's industry is already highly dependent on federal timber supplies (Figure 1). According to the U.S. Forest Service, up to 28,000 jobs in Washington, Oregon, and northern California would be lost if the proposed spotted owl protection plan were implemented, and the total timber harvest from federal lands would be cut in half.

Whatever cutbacks occur, the impacts will not be uniformly felt. Oregon would face severe harvest reductions on its Bureau of Land Management forests—in addition to cutbacks on Forest Service lands. The proposed timber reductions range from 77 percent on the Olympic National

Table 1: Panel Forecasts

median annual percent changes

	REAL GROSS NATIONAL PRODUCT	IMPLICIT PRICE DEFLATOR
1989 actual	3.0	4.1
1990	1.9	4.2
1991	2.5	4.0

	NOMINAL PERSONAL INCOME	NON-AGRICULTURAL EMPLOYMENT	MANUFACTURING EMPLOYMENT
[illegible]			
1989 actual	9.7	5.3	5.7
1990	8.0	3.7	2.0
1991	7.3	2.1	1.5
[illegible]			
1989 actual	8.1	4.4	1.4
1990	7.5	2.2	0.0
1991	7.5	2.0	0.8
[illegible]			
1989 actual	10.5	5.8	6.7
1990	9.2	5.3	7.3
1991	7.8	5.0	6.5

Forest and 74 percent on the Mount Baker-Snoqualmie National Forest and the Salem BLM District, to 51 percent on the Gifford Pinchot and 41 percent on the Umpqua. Washington's Pinchot and Oregon's Umpqua are the two most productive national forests in the country.

The impact numbers and methodologies vary widely—each agency and industry group has its own bias—and are the grist for contentious debates within the region and in Washington, D.C. What is clear is that the fundamental restructuring process that began in the forest products industry in the 1970s will accelerate in the 1990s. Some of the state-sponsored timber assistance programs, such as log export restrictions on Washington State lands, are only temporary fixes that may, in fact, exacerbate the price effects of a constrained timber supply. Even with economic diversification efforts, some of the region's mill towns may still end up as ghost towns. Efforts to keep within the region the complete manufacturing cycle of the raw log—from lumber to a finished product ready for export—show promise, but will not make up for the losses from primary processing.

State tourism agencies estimate that visitors spent $2 billion in Oregon in 1988 and $4.8 billion in Washington. These are impressive numbers, and officials in Washington are confident that the Goodwill Games, which will be staged from mid-July through early August, will yield a banner year for tourism. The world-class sporting event, and its associated cultural arts festival and international trade exhibition, should draw hundreds of thousands of tourists into Washington.

Let the Games begin

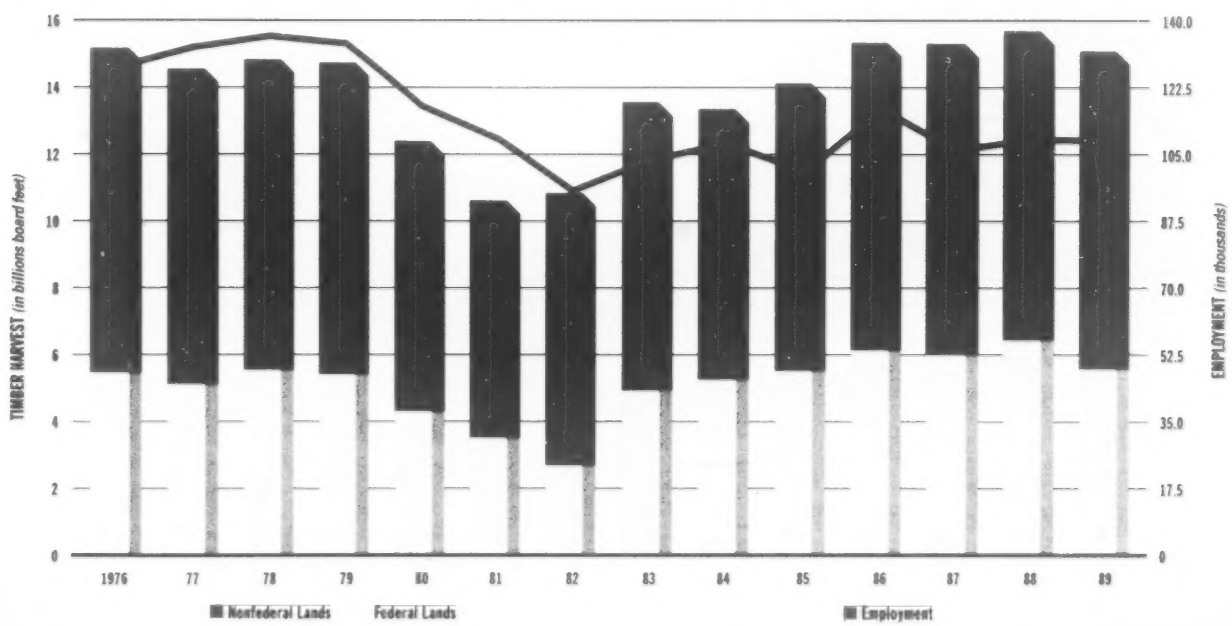
The Games will be played, for the most part, in Seattle, Tacoma, Federal Way, and Redmond, although some contests are scheduled in Spokane and Kennewick. R. E. Hansen Research Associates, which conducted an economic and fiscal impact analysis of the event, estimates that the 17-day Goodwill Games and their associated performances will inject about $300 million of "new" money into Washington's economy and generate $15 million in revenues for the state's own coffers.

The major spenders will be the Seattle Organizing Committee (SOC), which will fund the operating and capital costs necessary to stage the Games; the Turner Broadcasting System, which will transmit the sporting events to audiences around the world; the federal government agencies that provide security and other services; the official Goodwill Games licensees and vendors; the arts, cultural, and trade promotion programs; and visitors (including spectators, the media, and, of course, the athletes). These direct sources of new money will generate $155 million; a "ripple effect" of indirect economic activity will produce another $144 million.

The immediate dollar impacts are not the only significant economic responses associated with the Goodwill Games. The improvements made in the area's stock of sports facilities will continue to generate significant returns in the future—world-class events always need world-class arenas, pools, etc. In addition, the national and international exposure that the Northwest will receive from the Games will attract future visitors and improve the international trade prospects for Washington businesses.

This summer's Games will be a boon for businesses in the Puget Sound, but may be a bust for other destinations within the region. The Washingtonians, Oregonians, and Idahoans who decide to attend the Goodwill Games may do so in lieu of vacationing in other parts of the Northwest. Even the weekend recreational destinations may find themselves competing with the Games during July and August for the disposable income of tourists and Northwest residents.

Figure 1: Timber Harvest and Lumber and Wood Products Employment in Washington and Oregon, 1976-1989



Food Processing: The Pacific Northwest's Industrial Powerhouse

Ever since 1866, when a small salmon cannery was built in Eagle Cliff, Washington, food processing has been one of the Pacific Northwest's economic mainstays. Today, 1,200 plants—from the seafood processor in Astoria to the boutique vintner in Caldwell, from the fruit growers cooperative in the Yakima Valley to the bakery in Portland, the meat packer in Pasco, and the frozen French fried potato processor in Burley—employ 76,100 workers, making food processing the region's third largest manufacturing industry.

Food processing is such a common feature of the Pacific Northwest's economic landscape that developments are often seen as unremarkable. Most people are simply captivated by the more dynamic and technologically progressive industries within the region. Yet food processing, an admittedly mature and largely rural industry, has been swept by a wave of recent investments. Within the last two years, the fruit and vegetable processing sector has added 12 new plants and 10 major plant expansions—the largest influx of new investment within the industry since the mid-1960s. With this industrial powerhouse once again flexing its economic muscle, this is an appropriate time to examine the industry's current character and future growth potential.

Characteristics of the Food Processing Industry

Food processing occupies a powerful position within the food and fiber system. The industry has been likened to the center of an hourglass: raw agricultural commodities from more than two million farms and ranches flow through roughly 20,000 processors, which in turn sell their array of processed products to more than half a million food wholesalers and retailers. A hundred million households consume the meat products, dairy products, preserved fruits and vegetables, milled grains, bakery products, fats and oils, beverages, and miscellaneous products (fish and seafood, coffee, pasta, and manufactured ice).

The importance of food processing lies in its various economic functions. Foremost, processors convert food materials into finished, consumer-ready products through the application of labor, machinery, energy, and management. They employ handling, manufacturing, and packaging techniques to add economic value to raw commodities harvested from the farm or the sea.

Virtually all agricultural products incur some degree of processing before reaching their final use. The value added varies by commodity: steers become meat, potatoes are turned into French fries, wheat is made into flour, apples become juice, and fresh salmon emerges as canned salmon. The farm value of fruit and vegetable products at the retail level—frozen peas, for instance—is about 20 percent, meaning that 80 percent of the retail value is "added" to the raw product during processing and distribution.

Adding value to farm products and other material ingredients is the principal way that food processing contributes to state and national economies. Economic developers are not as interested in these processing activities per se as they are by the fact that value-added represents the creation and distribution of wealth, which translates into additional jobs and increased income for the residents of Washington, Oregon, and Idaho.

Finally, processors act as important middlemen within the food system. Consumer demand and agricultural supply information come together at the processing center. For instance, a tight supply of frozen corn at the retail level is eventually transmitted into higher processor prices, a greater willingness to pay for key inputs, and a price signal to farmers to expand production or sell off their stored crop. In contrast, an unexpectedly short crop induces processors to raise their prices to retailers and distributors, which subsequently prompts a decrease in consumer demand. Many processors, especially those in fruits and vegetables, coordinate production and marketing through their contracts with growers. The processor sets the contract price, based on expectations of sales, the prices of processed products, and the costs of processing. Since market considerations limit processors to producing what can be sold, rather than selling what can be produced, projected production and sales act as the primary determinants of the amount of acreage that is contracted for crop production. By contracting, said Don Holley, the chief economist of Ore-Ida Foods, "the processor in effect becomes a partner with the grower."

The Constant Demand for Food

The national food processing industry is imposing by its sheer size and diversity. Based on the value of shipments, it is the second largest (behind transportation equipment) of the manufacturing industries, and its growth indicators have, for the last several decades, been generally positive. The exception has been a loss in employment, which underscores food processing's impressive record in labor productivity.

Food processing has been relatively insensitive to the peaks and troughs of production caused by the national business cycle. Plant capacity levels have been much steadier than other industries; consumer purchases of food and beverages in restaurants mimic the current business cycle, while purchases in food and grocery stores increase faster during mild recessions and slow down during periods of rapid growth.

Although the industry possesses an enviable record of stability, there is a pronounced seasonality in production patterns. Seasonal fluctuations are the result of harvest patterns (particularly in the canning and freezing, sugar, and vegetable oil sectors), though some food processors must contend with strong variations in consumer demand (such as for soft drinks and turkeys).

In the long run, household demand for

food drives much of the growth and change in the industry. Unlike other manufacturing sectors, the U.S. food processing industry is oriented toward the domestic market (exports account for less than 4 percent of total sales). Within the domestic market, consumption patterns shift as consumers change their eating habits. In the last decade, for instance, the demand for red meat has declined, and the consumption of poultry and fish has increased. Consumers want their fruits and vegetables fresh, not canned. The growing demand for frozen vegetables—particularly potatoes—reflects the food shopper's greater preference for convenience foods and away-from-home meals. In the last several years, these changing patterns of demand have left food processors facing difficult adjustment problems, including large inventory surpluses and increased costs of production.

Fruits and Vegetables

The preserved fruits and vegetables sector ranks second nationally (behind beverages) and is the dominant food processing sector in the Pacific Northwest. The region produces a cornucopia of canned, frozen, dehydrated, and specialty food products. Canned goods producers manufacture ethnic foods and soups; process fruits, vegetables, juices, jams, jellies, and preserves; package dried fruits and vegetables and soup mixes; and process salad dressings, relishes, sauces, seasonings, and pickles. Other firms freeze fruit, fruit concentrates, and vegetables, or manufacture specialty foods, such as frozen entrees and pizzas. Still others process dehydrated products, such as soup ingredients and potato flakes, or specialty items, such as brined cherries and pickles, relishes, and sauces.

The history of the Pacific Northwest's commercial fruit and vegetable processing industry is a story of remarkable growth: improved farming techniques, the establishment of irrigation systems, the extraordinary inventiveness within food preservation and packaging, improved outbound transportation for product distribution, and new concepts in marketing and retailing. These factors, working in concert, have allowed the region's processors to become the national leaders in fruit and vegetable processing. The Pacific Northwest, in fact, has been dubbed the "cradle of the frozen foods industry" for its role in technological breakthroughs.

Compared with the rest of the United States, the region's commercial fruit and vegetable industry is relatively new; its strongest growth has come since World War II. The industry traces its roots back to 1874, when Elizabeth Lovejoy, the wife of Portland's founder, started canning surplus cherries and pears. A few years later, her operation, A. J. Lovejoy and Sons, became the region's first fruit and vegetable processor. Before the turn of the century, canning facilities had been founded in Walla Walla and in the Yakima and Puyallup valleys. In the early 1900s, the Puyallup and Sumner Fruit Growers Association—the first in the Northwest—began canning berries to supplement the sale of fresh fruit. The region's frozen food industry started when growers began cold packing berries for ice cream and jelly manufacturers. Growth in the canning industry accelerated during World War I, although most canned foods were reserved for the military.

During the early 1920s, planning began on the Columbia Basin irrigation project, which was the largest of several federal reclamation and irrigation schemes. The dams that obstructed the Snake and Columbia rivers within the arid sections of Idaho, Oregon, and Washington eventually enabled growers to double the region's irrigated acreage (to more than 7 million acres), vastly increasing the abundance of agricultural products that was available for processors.

By 1940 the region's vegetable and fruit production had grown to about 15 million cases of canned foods and 107 million frozen pounds. Technological developments within the frozen food sector—particularly the multiplate freezer and the "blast tunnel" freezing process—first appeared during this time, leading to explosive growth within the frozen pea and berry processing sectors in Oregon and Washington. The rapid progress of the frozen food industry was tempered somewhat, however, by the problems of transporting, storing, and displaying frozen food products. As a result, frozen foods were still generally regarded as experimental and exotic.

World War II provided the impetus for the permanent expansion of both canned and frozen food production in the Pacific Northwest. Two-thirds of the rations consumed by the Allied forces were packed in cans and jars. The priorities and scarcities common during the war effort were profound market stimuli for the immediate post-war period, when consumers continued to rely on canned goods and frozen foods won broad acceptance. In 1946 processed fruit and vegetable production in the Pacific Northwest exceeded 21 million cases and approached 300 million pounds of frozen foods.

The growth rate of the Northwest's canning industry climbed quickly during the post-war boom years, then remained steady throughout the 1950s. Spurred on by increased per capita consumption, frozen food production more than tripled during the decade, passing the 1 billion pound mark. What began as the decade of frozen peas became the decade of the frozen French fry. In response to insatiable consumer demand, the frozen potato supply grew from 6 million pounds in 1953 to 262 million pounds in 1959.

The Pacific Northwest has been dubbed the "cradle of the frozen foods industry" for its role in technological breakthroughs.

(The phenomenal nationwide demand for frozen potatoes continued well into the late 1980s and, by the close of the decade, production approached 6 billion pounds. As the region that produces 75 percent of the U.S. total, the Northwest clearly depends on irrigated fields in Idaho and eastern Washington and Oregon. The Russett-Burbank potato, which makes a superior French fry, grows best in the Northwest.)

The demand for dehydrated potatoes, which first appeared on the market in 1950, also soared. The Northwest, where the best potatoes for flake production are grown, is now the nation's production center.

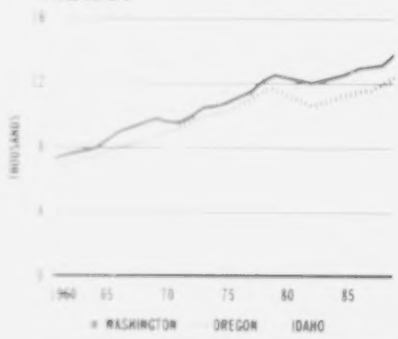
Transportation came to the fore during the 1950s, when the railroads imposed a series of heavy freight rate increases, and the region's processors suddenly found themselves at a competitive disadvantage with East Coast processors. Although Northwest processors had higher quality products, the shipping rate hikes led to a significant decline in the volume that was sent east of the Rocky Mountains. Eventually,

REGION WATCH

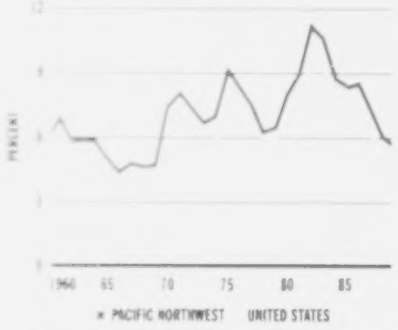
Pacific Northwest Annual Economic Indicators

REAL PERSONAL INCOME PER CAPITA

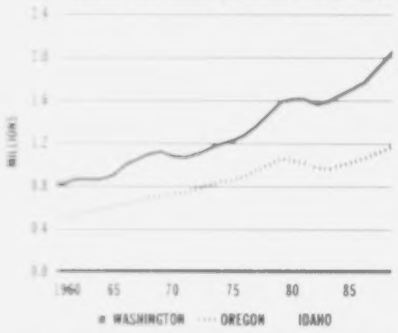
in 1982 dollars



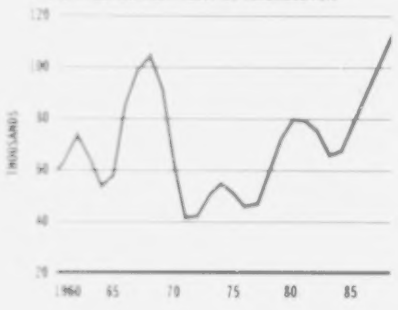
UNEMPLOYMENT RATE



NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT



AEROSPACE EMPLOYMENT IN WASHINGTON



POPULATION [A 1 2]

in thousands

YEAR	WA	OR	ID
1960	2,853	1,769	667
1965	2,867	1,937	686
1970	3,413	2,092	713
1975	3,621	2,330	832
1980	4,132	2,633	944
1985	4,407	2,689	1,005
1986	4,461	2,703	1,003
1987	4,542	2,723	1,000
1988	4,648	2,767	1,003
1989	4,761	2,820	1,014

PERSONAL INCOME [B 2]

in millions $

	WA	OR	ID
	6,914	4,019	1,263
	9,094	5,497	1,736
	14,234	8,169	2,486
	23,258	14,072	4,548
	44,562	26,063	8,128
	62,032	33,955	10,863
	66,280	35,479	11,198
	71,006	37,830	11,789
	76,542	41,170	12,631
	83,979	44,514	13,954

FARM INCOME [B 2]

in millions $

	WA	OR	ID
	261	180	155
	287	185	237
	361	235	277
	943	431	416
	1,007	582	512
	1,025	626	491
	1,422	793	549
	1,445	878	654
	1,330	965	653
	1,489	983	942

IMPLICIT PRICE DEFLATOR [B]

for personal consumption 1982=100

YEAR	U.S.
1960	32.9
1965	35.6
1970	42.9
1975	59.2
1980	86.6
1985	111.8
1986	114.3
1987	118.9
1988	124.5
1989	130.0

UNEMPLOYMENT RATE [E 2 4]

percent of labor force

	WA	OR	ID
	6.3	4.9	6.0
	5.4	4.5	4.8
	9.1	7.1	5.8
	9.5	10.6	7.3
	7.9	8.3	7.9
	8.1	8.8	7.9
	8.2	8.5	8.7
	7.6	6.2	8.0
	6.2	5.8	5.8
	6.2	5.4	5.1

TOTAL EMPLOYMENT [E 2 4]

in thousands

	WA	OR	ID
	1,020	682	264
	1,107	776	267
	1,281	803	281
	1,412	929	342
	1,828	1,189	395
	1,921	1,202	429
	2,018	1,245	432
	2,085	1,301	435
	2,173	1,326	451
	2,300	1,364	464

NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT [E 2]

in thousands

YEAR	WA	OR	ID
1960	812.6	509.2	155.2
1965	896.6	607.4	177.6
1970	1,080.0	709.2	209.3
1975	1,225.7	837.4	273.0
1980	1,608.3	1,044.6	330.0
1985	1,710.4	1,030.0	335.9
1986	1,769.9	1,058.5	333.6
1987	1,851.8	1,100.1	333.5
1988	1,943.2	1,156.0	347.4
1989	2,045.3	1,206.6	367.4

MANUFACTURING EMPLOYMENT [E 2]

in thousands

WA	OR	ID
216.6	144.4	28.9
227.0	158.2	33.3
239.4	172.3	40.4
244.0	182.1	47.8
308.7	215.1	53.3
295.5	199.3	54.6
305.1	198.4	52.1
318.4	206.2	54.1
341.8	214.2	56.8
361.3	217.2	60.6

AEROSPACE EMPLOYMENT [E 2]

in thousands

YEAR	WA
1960	57.8
1965	57.0
1970	61.5
1975	50.4
1980	79.6
1985	76.0
1986	85.0
1987	92.9
1988	101.0
1989	112.9

LUMBER AND WOOD PRODUCTS EMPLOYMENT [E 2]

in thousands

WA	OR
44.4	71.9
46.9	74.2
42.2	66.8
47.2	69.6
47.0	69.5
38.3	63.6
38.4	64.6
40.4	68.0
41.7	68.8
41.1	66.9

PAPER EMPLOYMENT [E 2]

in thousands

WA
18.0
19.8
19.8
16.4
17.6
16.7
16.7
16.6
17.1
18.3

CONSTRUCTION EMPLOYMENT [E 2 4]

in thousands

WA	OR	ID
44.6	26.1	9.6
46.4	26.1	9.6
53.3	29.5	10.9
59.5	35.3	16.1
92.6	46.5	15.8
80.6	33.1	15.1
84.5	34.3	14.6
88.9	35.3	13.7
96.6	39.9	14.2
106.6	45.2	16.0

CONSTRUCTION CONTRACTS [C]
in millions $

YEAR	WA	OR	ID
1960	632.3	364.6	115.4
1965	1,006.7	585.7	186.8
1970	1,478.2	634.3	197.4
1975	2,019.3	1,035.9	398.6
1980	4,795.1	1,926.1	634.5
1985	4,409.1	1,603.8	758.0
1986	5,054.6	1,603.8	679.9
1987	5,231.6	1,831.7	637.1
1988	4,945.7	2,164.3	846.3
1989	5,235.7	2,453.8	740.0

NEW HOUSING UNITS AUTHORIZED [A, 2]
in numbers of permits

	WA	OR	ID
	NA	NA	NA
	20,131	15,610	1,846
	28,262	16,980	3,565
	35,209	20,091	8,172
	33,375	19,480	5,795
	35,474	11,297	4,307
	36,434	10,662	3,804
	38,341	12,218	3,185
	45,055	14,049	3,211
	48,210	23,089	4,776

AVERAGE LUMBER PRICE [D, 3]
1000 board ft

	PNW
	$75.01
	76.09
	91.08
	154.63
	267.59
	214.49
	214.46
	233.54
	251.53
	277.37

NEW HOUSING UNITS AUTHORIZED

PLYWOOD PRODUCTION [F, 2, 5]
in million board ft

YEAR	WA & OR
1960	6,535
1965	9,720
1970	8,663
1975	7,722
1980	6,786
1985	8,440
1986	9,545
1987	10,093
1988	9,437
1989	8,237

LUMBER PRODUCTION [D, 2]
in million board ft

	WA	OR
	3,377	7,402
	3,648	7,580
	3,189	6,580
	3,104	6,342
	3,161	5,784
	3,419	7,211
	4,132	8,149
	4,645	8,846
	4,408	8,601
	4,135	8,420

WOOD PULP [4]
in thousand short tons

	WA	OR
	NA	NA
	NA	NA
	3,848	2,643
	3,585	2,480
	3,519	3,787
	4,101	2,925
	4,285	2,948
	4,531	3,106
	4,597	3,113
	NA	NA

LOG EXPORTS [G]
in million board ft

	WA & OR
	NA
	901
	2,216
	2,225
	2,632
	3,004
	2,780
	3,168
	3,682
	3,615

CONSUMER PRICE INDEX

ALUMINUM PRODUCTION [H, 6]
in thousand tons

YEAR	PNW
1960	527.3
1965	796.5
1970	1,390.0
1975	1,411.0
1980	1,574.4
1985	1,356.4
1986	1,242.8
1987	1,382.7
1988	1,660.7
1989	1,734.4

ELECTRICITY PRODUCTION [I, 7]
in megawatts

	PNW
	69,386
	99,873
	143,993
	171,797
	206,221
	193,093
	199,758
	199,758
	218,735
	228,516

BPA ENERGY SALES [J]
in thousands of MWH

	29,449
	37,211
	56,327
	68,934
	72,448
	83,753
	81,586
	68,984
	69,625
	74,363

BPA AVERAGE PRICE OF POWER SALES [J, 8]
in mills per KWH

	2.30
	2.36
	2.38
	3.40
	6.25
	21.14
	18.13
	21.04
	24.73
	24.11

CONSUMER PRICE INDEX [K, 9]
1982=100

YEAR	PORTLAND	SEATTLE EVERETT
1960	29.8	28.8
1965	32.3	31.0
1970	38.7	37.4
1975	53.5	51.1
1980	87.2	82.7
1985	106.7	105.6
1986	108.2	106.7
1987	110.8	109.2
1988	114.7	112.8
1989	120.4	118.1

FOREIGN TRADE [A, 10]
Portland and Seattle Customs Districts in millions $

EXPORTS	IMPORTS
625	305
829	427
2,688	1,651
6,244	4,781
15,770	11,836
15,533	17,349
18,006	19,987
19,378	22,195
26,495	24,022
32,830	26,323

AVERAGE HOURLY EARNINGS [F]
for manufacturing production employees

WA	OR	ID
$2.63	$2.55	$2.25
2.98	2.94	2.65
4.06	3.82	3.29
5.82	5.53	4.77
9.41	8.65	7.55
11.63	10.50	9.41
11.77	10.57	9.66
12.01	10.56	9.70
12.03	10.60	10.00
12.38	10.80	10.20

SOURCES
- A Bureau of the Census, U.S. Dept. of Commerce
- B Bureau of Economic Analysis, U.S. Dept. of Commerce
- C F.W. Dodge Division, McGraw-Hill Information Systems Co.
- D Western Wood Products Assoc.
- E Washington State Employment Security Dept.; State of Oregon Employment Div.; State of Idaho Dept. of Employment
- F American Plywood Assoc.
- G U.S. Forest Service
- H Direct Services Industries, Inc.
- I Pacific Northwest Utilities Conference Comm.
- J Bonneville Power Administration
- K Bureau of Labor Statistics, U.S. Dept. of Labor

FOOTNOTES
1. Includes armed forces residing in each state.
2. The 1989 figures are estimates.
3. FOB mill realization, coast region (Oregon and Washington) for Douglas fir and Hem-fir.
4. Data from 1978 to present have been revised to incorporate a methodology change. See the July 1988 *Monthly Labor Review* for details.
5. Includes all types of structured panels.
6. Includes nine primary producers in Washington, Oregon, and Montana.
7. One Megawatt = 1,000 kilowatts.
8. One mill = 0.1 cents.
9. CPI for all urban consumers, annual average.
10. Data do not account for export of aircraft or shipments that pass through the Northwest and clear customs elsewhere. The 1960 figures do not include imports or exports by air.

trucks, which were more efficient and could serve an extensive delivery network, took over as the leading mode of transportation for the region's food products.

Surprisingly, food processors on the East Coast and in the Midwest not only had the benefit of lower freight costs, but they also enjoyed lower costs for raw products and labor. To offset such disadvantages, Pacific Northwest processors began to rely on mechanization to reduce their costs. Many smaller processors, of course, found it difficult to undertake the increased capital investments (despite their lower costs for water and energy) that were needed to remain competitive. The result was—and continues to be—an increasingly concentrated industry, one characterized by corporate acquisitions and mergers, and large regional facilities owned by food conglomerates from outside the Northwest.

No Small Potatoes

The Northwest is one of the nation's premier preserved fruits and vegetables producers. The region dominates the frozen vegetables market; more than half of the nation's total is processed here. Frozen potatoes accounted for two-thirds of the region's 6.8 billion pounds of processed fruits and vegetables in 1988, and the region's 163 processing plants, which grossed more than $3.8 billion in sales, provided for about 30 percent of the total U.S. market.

Although canned fruits and vegetables remain an important part of Northwest food processing, per capita consumption has fallen as a result of the public's increased demand for fresh produce and frozen foods. The average annual consumption of canned fruits and vegetables is now at 109 pounds per person, compared with 192 pounds of fresh fruits and vegetables and 32 pounds of frozen. Canned fruit and vegetable production hit a record high of 45 million cases in 1979, but dropped off in the 1980s. Frozen fruits and vegetables, in contrast, continued to dominate the region's industry, with an annual production volume growth rate of 6 percent during the decade.

The industry's remarkable growth, as measured by its value added, has not translated into additional employment (Figure 1). In 1979, 37,900 people worked in the region's fruit and vegetable processing plants; 10 years later, the employment figure stood at 36,700. Regional productivity rates (as measured by value added per man-hour worked) have been lower than the national average, due in part to lower rates of capital spending, higher input supply costs, and the Northwest's product mix, which is oriented toward bulk-type commodities.

Why is the Pacific Northwest such a fruit and vegetable processing powerhouse? The most important reason is the region's abundant and diverse agricultural base. Washington, Oregon, and Idaho are three of the nation's leading agricultural states, with a combined total farm value of agricultural production that reached $8.6 billion in 1988. The region leads the nation in apples, berries, cherries, prunes and plums, pears, potatoes, sweet corn, onions, carrots, and peas—all of which are primary ingredients in both domestic and international food, feed, and fiber processing and distribution systems.

Although a number of processing plants are geared toward supplying packaged foods for the region's metropolitan areas, most of the region's 163 facilities are located in three rural areas, close to the crops they process. The greatest diversity of crops—both traditional and specialty—can be found in the Puget-Willamette Lowlands, which extend west from the Cascades to the Coast Range and south from the Canadian border to Eugene, Oregon. The wet, mild climate nurtures the finest berry crops in world.

The Columbia Basin is located in north-central Oregon and southcentral and southeastern Washington. This growing region, which is well-irrigated by the Snake, Columbia, and Yakima rivers, produces most of the nation's potatoes, apples, and pears. The third major agricultural region, the Snake River Valley, stretches almost 400 miles from southeastern Idaho into eastern Oregon. Although the valley is now potato-growing country, its food processing plants were originally established for sweet corn, peas, and fruit crops.

The region's food processing industry has also had the advantage of abundant and reliable water supplies and low-cost electricity rates. In addition, the region's location makes it a natural launching point to the burgeoning export markets of the Pacific Rim.

In the past decade, processors in the Pacific Northwest have been competing vigorously with those in the Midwest for domestic market share. Although Midwestern processors enjoy a distinct transportation advantage to the East Coast, the two-year drought in the Midwest has allowed the Pacific Northwest to regain lost market share. The region's processor managers have always stressed the importance of their products' quality, reliability of supply, and competitive pricing as keys to success in food processing. David Klick, the vice-president of the Northwest Food Processors Association, pointed out that shortages in the Midwest "demonstrate that buyers are seeking a stable and uninterrupted supply and are less willing to place all their fruits and vegetables in one basket."

The flurry of new investment in the region's fruit and vegetable processing industry includes a healthy mix of new plants and expansions of existing processors. Newcomers are investing in the region to gain access to reliable raw material flows, cheap power, abundant water, and the Pacific Rim. Existing firms have pumped profits into expanded capacity in response to the demand for frozen foods and also to diversify their product lines to include more specialty foods. "The character of the region's industry, however, has not changed much from previous decades," stated Des O'Rourke, the director of the International Marketing Program for Agricultural Commodities and Trade (IMPACT) at Washington State University. Much of the new investment is, as in the past, in low value-added commodities, such as frozen berries and vegetables.

The Forces of Change

Despite this bright near-term outlook for the Pacific Northwest, the demographic, economic, and technological changes already in evidence will accelerate dramatically, reshaping the fruit and vegetable processing industry and heightening uncertainty for the future. Food markets are becoming more fragmented, making it difficult to follow food processing trends. The fragmented marketplace creates problems, but also presents opportunities for more specialized products. The successful fruit and vegetable processors of the 1990s will no longer be the most efficient ones, rather those that are able to customize their strategies in response to the changing market.

► **Demand Changes.** Consumer tastes and habits change continually. In the past, demand growth has been the result of changes in America's level, distribution, and sources of income, the demographic composition of the population, food prefer-

ences, prices, and foreign growth. As incomes increase, consumers shift to higher quality, more convenient foods, and they look for increased variety. Food purchases, according to Tom Pierson of Michigan State University's Food Industry Institute, are now based more on overall value and perceived benefits than on price. The processed fruits and vegetables with relatively high income elasticities include premium (name-brand) frozen fruits and vegetables, blended juices, convenience foods, and away-from-home meals. Processed foods, such as canned fruits and vegetables, face declining demand.

Perhaps the most significant factor affecting demand has been the dramatic transformation in the demographic composition of the population. The overriding trend is the graying of America. By 1995 the median age of the population will be 36, and there will be eight million more senior citizens than teenagers. Unlike the 1960s and 1970s, when teenagers prompted producer changes, adult tastes and habits will shape food markets in the 1990s.

Another major demographic trend is the role of women in the labor force. By the mid-1990s, more than three-quarters of all married women will be working, and the demand for convenient, high-quality, and easily prepared food will grow. Immigrants and rapidly expanding minority groups, such as Asians and Hispanics, will also affect demand for processed foods.

Consumers also have a growing concern and awareness of nutrition, food safety, diet, and health. As the scientific evidence of the influence of diet on health mounts, consumers are choosing more foods that are components of a balanced and healthy diet, and minimizing their intake of salt, sugar, fat, preservatives, artificial additives, and agrochemical residues. The food processing industry, in response to the public's questions regarding food safety, is working to prevent another Alar crisis.

Although the Northwest's processing industry produces more than 85 percent of its food for the domestic market, the potential—particularly for Washington and Oregon—to serve foreign markets, especially those of the Pacific Rim, is enormous. The IMPACT Program's O'Rourke states that the greatest future potential for regional processors lies in their success within export markets.

► **Supply Side.** With the recent investment growth, Pacific Northwest processors now believe that finding enough raw material looms as a potential problem. One way of responding to the supply problem is to make more farmland available through irrigation. Growers, with available government funds, could keep a large amount of acreage poised for irrigation.

The labor component of productivity is another factor that concerns most processors. Unlike other regions, the Pacific Northwest's processing industry is highly seasonal, and seasonal workers comprise approximately two-thirds of the entire labor base. Worker shortages are providing the industry with an incentive to adopt automation. These new technologies will eventually result in lower costs per unit, thus improving the region's competitive position. An unintended side effect of improved productivity through automation, however, is decreased employment opportunities for rural workers.

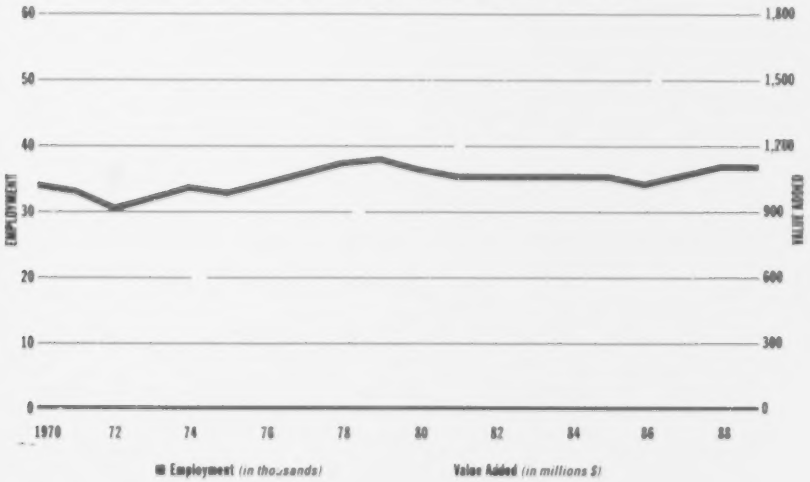
► **Market Structure.** The frenetic pace of merger activity during the last decade has contributed to a significant rise in business consolidation, a trend that is likely to persist for some time. In the Pacific Northwest, the large processing companies are growing larger through merger and acquisition activity, and new firms are entering the smaller, more specialized niche markets.

Consolidation will continue to alter the food processing landscape. A significant portion of the region's industry consists merely of the branch operations of East Coast and California food conglomerates. The result is that these branch facilities—which are controlled by the marketing decisions and corporate research and new product development ideas made elsewhere—may have a limited ability to respond to changing consumer markets. The potential, however, also exists for shifting the region's output from bulk commodities to more value-added products.

► **Technology.** Science and technology provide the spark for the future of food processing. Technologies developed and implemented within the industry can be divided into low-consumer visibility, such as advances in the fermentation process used in pickle production, and high-consumer visibility technologies, such as food irradiation, aseptic processing and packaging, genetic engineering, and new packaging materials. The high-visibility breakthroughs may require innovative marketing techniques to overcome consumer resistance. Although the use of these technologies will ultimately reduce production costs, they may be prohibitively expensive for the smaller operations, which may lack the necessary capital and skilled personnel. For that reason, technological innovations may accelerate the industry's trend toward concentration.

As the preserved fruit and vegetable industry enters the 1990s, it does so revitalized by substantial new investments, yet facing formidable challenges. In the past, the industry has successfully overcome obstacles and has remained a significant contributor to the region's economy. These new investments will result in substantial growth in sales, but only limited employment opportunities.

Figure 1: Employment and Value Added in the Food Processing Sector, 1979–1989



Federal R&D Funding: The Northwest's Share

The recent collapse in the growth of productivity in the United States has focused renewed attention on technology's contribution to economic growth and competitiveness. Increased investment—not only in business spending for plant and equipment, but also for education, infrastructure, and research and development (R&D)—is central to technological advances and productivity improvements.

A recent report entitled *Keys to U.S. Competitiveness* by the New York-based Conference Board cited investment in R&D as critical to maintaining the nation's competitiveness within the increasingly global economy. Research and development, the study emphasized, leads to new processes that produce more output with less input, creates innovative products to perform old tasks more effectively, opens up previously unimagined markets, and improves export performance.

The amount of R&D investment and the nature of research is heavily influenced by the federal government, which is the source of nearly half of the nation's R&D funds, valued at $132 billion in 1988. According to the Office of Management and Budget's 1991 federal budget report, the government has supported research and development in two areas: first, to meet its own direct needs, such as defense-related projects, and, second, to meet broader national needs, including basic research, measurements and standards, and health-related programs. National security has been the most powerful motivator for a substantial portion of federally funded R&D.

Most federally funded R&D is actually performed by business firms, universities, and other nonprofit institutions, not by the government itself. Most nonfederal research and development is both funded and performed by industry. Less than 1 percent of the total for R&D spending comes from state governments—and what there is exists in the form of matching funds for federal projects.

With federal R&D revenue, a region benefits primarily through increased employment and the development of scientific personnel. The research results and the trained labor force can enhance the performance of established industries and foster the development of new ones. For instance, a strong link exists between R&D expenditures and industrial firm sales, suggesting that research and development leads to successful products and process innovations.

Does the Pacific Northwest have adequate R&D facilities and funding to foster the technological advances that can be transformed into commercial successes? Does the region, compared with others in the country, have a competitive advantage for federal R&D resources? And can an increase in federally funded research and development boost economic growth in the Pacific Northwest?

R&D and Economic Growth

According to the New York-based Committee for Economic Development, technological change has been the primary source of economic growth in the United States. Productivity is generally viewed as the mechanism by which economic resources expand and living standards rise. Research and development, an important ingredient in improving productivity, provides the seed for the innovation process. Innovations, in turn, lead to technological improvements, which enhance productivity, economic growth, and competitiveness.

A recent Brookings Institution report, *Innovation and the Productivity Crisis*, found that from one-fifth to one-half of all productivity growth during the 1960s was the result of industrial research and development. Federally funded research and development's direct impact on productivity is less clear, but it contributed an additional one-tenth to one-fourth to overall productivity. R&D seems to have had no substantial effect, however, on the slowdown in productivity during the 1970s.

The indirect benefits, which accrue to industries further along the chain of production (banks that adopt new computer technology, for example) are likely to be greater, but are much more difficult to trace. Federally funded R&D may be more long-term and diffuse; privately funded R&D tends to be more directly related to the products and processes of the individual firm, and thus has more easily recognized benefits.

The principal justification for governmental financing is that a market economy tends to underinvest in research and development. This benign neglect is especially true for basic or fundamental research, which inherently has substantial uncertainties, long-deferred benefits, and poses more difficulty for ensuring use of the results. Underinvestment also occurs in applied research and development. For example, there are a number of cases in which knowledge can not be patented or secrecy is difficult to maintain because of the mobility of scientists and engineers. In these instances, firms tend to avoid investment.

Research and development is a broad term that covers a variety of activities and numerous categories of spending. The common divisions are *basic research* (original investigations for the advancement of scientific knowledge and understanding), *applied research* (projects that have specific commercial objectives), and *development* (the production of useful materials, devises, systems, or methods). These three categories are perceived to represent a continuous process: the knowledge gained from basic research leads to the application of results by means of applied research and finally to commercialization through development. The R&D process, however, is not linear: frequently problems that arise in applied research may require solutions from basic research, and basic research can benefit from the results generated in applied research and development.

Trends In Federal Funding

The national R&D budget is composed of federal and private spending. Federal funding has been the more volatile component, and the dramatic cycles of growth and restraint in federal research and development spending have been driven by external events, as well as changing domestic concerns and social priorities.

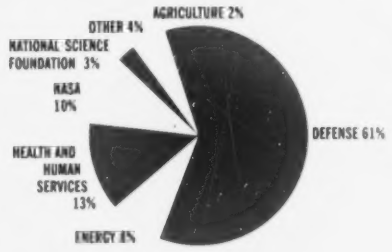
Total federal spending for research and development in constant dollars rose sharply during the early 1960s, almost dou-

ising in size between 1960 and 1967. Ninety percent of this increase was for nondefense purposes, the result of the enormous build-up in space R&D after the Soviet launch of Sputnik.

After the United States won the race to put a man on the moon, there was a dramatic decline in space-related funding. From 1967 to the mid-1970s, R&D funding did not keep up with the overall increases in the economy. Then, following the 1974 oil embargo, the government's research and development effort began a period of modest growth that was heavily influenced by the search for solutions to the energy problem.

During the 1980s, federal R&D spending reflected three significant policy decisions. Foremost was the Reagan administration's commitment to increased defense spending, which accounted for 61 percent of the total. Second, as the government's support

Figure 1: Department or Agency Sources of Federal R&D Funding, 1990



SOURCE: National Science Foundation, *Federal Support to Universities, Colleges & Selected Nonprofit Institutions*

of nondefense applied research and development fell, the private sector was called on to fund many of the R&D activities that were considered the government's purview. Third, the federal government heightened its support for the basic research performed by universities and colleges, particularly in the physical, life, and engineering sciences.

As a result of these policies, total federal spending for research and development (in real terms) grew by 24 percent between 1980 and 1988. This growth was far from uniform: defense-related R&D increased 73 percent (with most of the gain in development), while nondefense spending dropped 17 percent (with almost all that loss affecting applied and development research).

From 1988 to 1990, the first full-year budget of the Bush administration, nondefense R&D expenditures—particularly for basic research and development—rose faster than defense spending. In the government's 1991 budget request, the proposed total for research and development is listed at $71.2 billion, a slight increase of 2.6 percent in constant dollars (Figure 1).

The Buck Stops Here

During the 1980s, a number of states initiated policies and programs in science and advanced technology to foster economic growth and enhance their competitiveness. In-state research and development activities became an important component of these programs, and states focused on the performance of their academic institutions. In recent years, states have started paying increased attention to the R&D activities of industry, to academic-industry partnerships, to technology transfers, and to additional sources of research monies.

In the Pacific Northwest, total public and private R&D spending increased from 1.7 percent of the region's combined gross state product in 1975 to 3.2 percent in 1987. In comparison, the United States as a whole increased overall research and development spending from 2.2 percent to 2.8 percent of gross national product.

In recent years, the Pacific Northwest has become a leading recipient of federal R&D funds. On a per capita basis, the region received 15 percent more than the national average for research and development ($226) in 1988. Washington and Idaho benefited most, with $380 and $249 per capita, respectively; Oregon, with only $62 per capita, received only 27 percent of the national average.

The per capita measure implies that the geographic distribution of federal research and development funds is roughly proportional to the distribution of population. The actual distribution of federal research and development funds, however, is the result of the region's industrial mix and institutional structure.

► **Industrial Mix.** Although a large portion of R&D funding goes to universities and government labs, private labs overall receive more than a third of their support from the federal government. In terms of basic research, the government finances nearly two-thirds of private industry's endeavors. In the Pacific Northwest, 58 percent of the region's federal R&D monies are spent by industrial firms (Figure 2). How these dollars are used can be explained by the region's particular concentration of industries.

In the United States, the leading R&D industries—electrical equipment, aircraft and missiles, machinery, chemicals, and instruments—receive substantial amounts of funding from the federal government. The aircraft and missiles sector, in particular, depends on the government for 75 percent of its research and development monies, nonmanufacturing looks to federal sources for 60 percent of its funding, and electrical equipment receives 42 percent of its R&D budget from the government. Since the Department of Defense allocates two-thirds of the federal research and development budget, one could indeed argue that the United States has a *de facto* industrial policy. Three of the four sectors with the highest R&D expenditures per employee are defense-related and leading-edge technology industries: computers, electronics, and telecommunications. (Only the health-care sector—primarily pharmaceuticals—spends more on R&D per employee.)

The high level of federal research and development funding in the Pacific Northwest is largely the result of these defense-related dollars flowing into companies in the aerospace, electronics, instruments, and chemical sectors. Washington firms spent more than $1.6 billion in federal R&D funds in 1987, and the state ranked fourth (after California, New York, and Ohio) in terms of industry R&D support. More than half of Washington's federal R&D total went to the aerospace industry, and the lion's share went to Boeing.

Chemical industrial firms administer two of the region's defense-oriented research and development centers for the Department of Energy: the Hanford Engineering Development Lab in Richland, Washington, and the Idaho National Engineering Lab in Idaho Falls. In 1988 these two government facilities brought in more than $265 million in federal R&D funds, primarily to perform research in the area of nuclear materials. More than two-thirds of Idaho's federal funding goes to the national lab.

► **Institutional Structure.** Traditionally, the privileged position on the federal research support ladder was given to the agricultural experiment stations. Today the distribution of agricultural research roughly approximates the distribution of the rural population.

Following World War II, there was a dra-

matic surge in federal support for basic research performed largely by universities and nonprofit institutions. Although a number of federal agencies now fund scientific research, the Department of Health and Human Services (HHS), through its National Institutes of Health, contributed the bulk of the funds. In 1990 the figure was $8.4 billion, which represented 13 percent of total federal R&D funding. Of the HHS's $8.4 billion, 59 percent went to colleges and universities and 15 percent went to nonprofit institutions, primarily research hospitals. In essence, almost half of all the federal support for R&D at colleges, universities, and nonprofit institutions came from Health and Human Services. Another third was funded by the Departments of Defense and Energy and the National Science Foundation. Most of these federal funds are targeted for basic and applied research in engineering and the physical and life sciences.

As a group, universities and other institutions in the Pacific Northwest slightly outperform the rest of the nation in per capita R&D funding. Federal funding to region's educational institutions is dominated by the University of Washington, which attracted $181.4 million in R&D grants in 1988. The University of Washington was the top-ranked public institution—and the fourth-ranked overall (behind Johns Hopkins, Stanford, and MIT)—in terms of federally funded R&D in 1988. Other leading Northwest recipients are Oregon State University, Oregon Health Sciences University (Portland), Washington State University, and the University of Oregon. In Oregon, the monies that go into R&D projects at the university level account for more than half of the state's total funding.

Nonprofit institutions are also playing an expanding, but still relatively minor, role in performing federally funded research and development. Most of these institutions, such as the Fred Hutchinson Cancer Institute in Seattle and the Medical Research Foundation of Oregon, are involved in projects within the medical and life sciences.

Outlook for the Pacific Northwest

Current trends in federal spending for R&D by the major agencies indicate an increase in obligations, although the composition of funding clearly will change. Defense-related projects have been the largest and fastest growing source of federal research and development funding, but the prospects for future real growth are extremely limited. For the next several years, the Department of Defense's R&D budget will be influenced by world events, particularly in the Soviet Union and Eastern Europe, and by continuing efforts to reduce the budget deficit. In such an environment, there will be few new defense-related R&D initiatives, and current programs will either be curtailed or rescheduled.

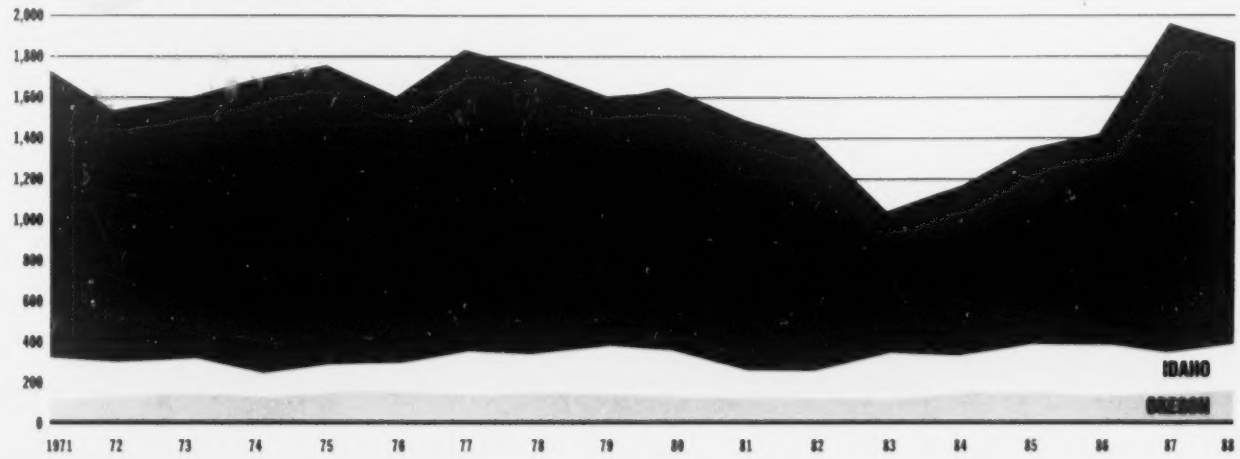
Given the prominence of defense-related R&D funding in the Pacific Northwest, the region's military-industrial complex could be severely impacted. As national priorities move away from defense contracts, the industry sectors of aerospace, electronics, and chemicals will find readjustment especially difficult.

The region's aerospace sector stands to be the biggest loser. Government support for defense-related research transformed the aircraft industry into a world leader. With declining federal funding, the industry's international competitiveness may be eroded.

In addition, federal support for basic research at universities, though expected to grow in real terms, may be less than expected. Less emphasis may be placed on the basic research role and more attention paid to the effective and expeditious application of applied research to commercial uses. Federal policies to improve research collaborations between universities and industry, as well as state-level technology-extension programs, should be encouraged. Multiprogram centers, such as Richland's Pacific Northwest Lab, will benefit from the federal government's increased support for the transfer of technology through licensing agreements, joint ventures, and commercial spin-offs.

Although questions remain regarding the level and composition of federally funded R&D in the region, the importance of that support cannot be understated. The Pacific Northwest will continue to rely on federal R&D funds to improve the competitive positions of the region's industries and to serve as a stimulus in the development of new goods and services.

Figure 2: Total Federal R&D Funding by State, 1971–1988
in millions 1982 $ (includes R&D and R&D plant)



SOURCE: National Science Foundation

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WASHINGTON'S OVERSEAS TRADE OFFICES

A Boon to Exporters or a Questionable Investment?

By Fred Moody

In 1982, as a result of t
Rudman-Hollings Amendm
dating a steady reduction in
eral deficit, the U.S. Departme
Commerce was forced to eliminate
promotional efforts that it had been undertaking in Japan on behalf of American companies. Into the breach stepped state governments, nearly all of which opened overseas trade offices in Tokyo. Now, eight years later, 38 states—Washington and Oregon included—have offices there, seeking entry for American business into the often inaccessible Japanese marketplace.

State overseas trade offices generally have a three-part mission: to promote tourism, to attract foreign investment, and to find export markets for their state's small businesses, most of which lack the financial resources to sell their goods overseas. The garden-variety office is staffed by one or two people and costs its state around $500,000 per year to operate. Nearly all of the country's state-run trade offices are located in Japan, although a growing number are opening in Taiwan and in Europe.

In comparison with other states, Washington gets by with a relatively bargain-basement operation. The state operates a $400,000 per year office in Tokyo that is staffed by one full-time trade official, a part-time assistant, and a full-time secretary. Another office, in Taipei, is maintained at a cost of less than $100,000 per year by a single half-time contract employee. Washington's only other overseas economic proselytization takes place in London, where a consultant is occasionally hired for specific tasks or events.

According to Jeanne Cobb, the division director of the Washington Department of
onomic Development's Busi-
arket Development Group, the
erseas trade offices help Washing-
to mpanies find foreign buyers and in-
vestors, help our state's companies participate in overseas trade shows, coordinate state government trade missions, and publicize Washington as a tourist destination. The offices also collect, study, and disseminate the general information on the target country's economic conditions that could impact foreign trade.

A Reason for Being

Although the potential benefits of state overseas trade offices are almost universally acknowledged, no one, surprisingly—whether in state government or private industry—can come up with a hard bottom-line justification for running these offices at state expense. Even Cobb, whose office oversees Washington's overseas operations and who is an outspoken advocate for state export promotion, offers little in the way of a number-crunching defense. "We just match people up," she said. "It's hard to quantify exactly how many dollars worth of business our offices are directly responsible for."

There is no question that the development of export markets creates jobs. De-

EDITOR'S NOTE: This article examines state-sponsored overseas trade offices and their role in export promotion. State-run offices, however, are not the sole vehicles for export promotion. Third-party or quasi-public organizations, such as the Evergreen Partnership and the Tacoma World Trade Center, also receive some state suport for their activities on behalf of export promotion.

Table 1: Rate of Job Creation for Export and Nonexport Shipments, 1986

in jobs per million $ of manufactured goods

	MOST-POPULATED STATES	MIDRANGE STATES	LEAST-POPULATED STATES
Export Shipments	28	29	32
Domestic Shipments	30	33	40

NOTE: States were divided into thirds according to population.

SOURCE: Department of Commerce, Bureau of the Census, *Exports from Manufacturing Establishments: 1985 and 1986*.

partment of Commerce statistics for 1985 and 1986, however, show that the rate of job creation per million dollars of exports, regardless of the state's size, is lower for export shipments than it is for nonexport shipments (Table 1). Nevertheless, in a rapidly shrinking and increasingly interdependent world, the key to survival for many American businesses lies in finding new markets outside their country's borders.

Not so easily answered is the question of what a given state's role should be in developing export markets. The rationale behind state overseas trade offices is that American businesses and foreign buyers or investors need them to find one another in the maze of languages, trade barriers, commerce laws, and other thickets that make up the international marketplace. Yet when we attempted to find a measurable relationship between state export promotion activity and the value of exports from given states, we discovered that overseas trade offices have no discernible impact on overseas trade. When we added up the dollars a given state spends on export promotion, for example, then matched that figure with the percentage of a state's products that are exported overseas, we could find no significant relationship between export promotion and exports. States that spend nothing do as well—or as poorly—as states that spend $5 million per year.

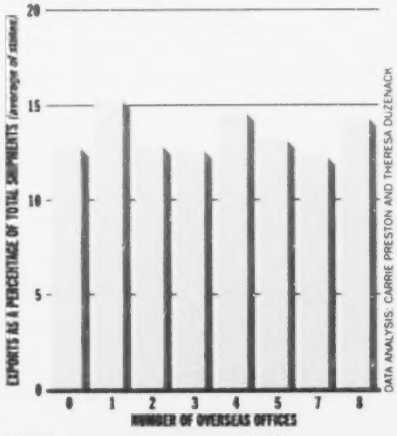
We came up with similar results when we compared the number of a state's overseas trade offices with the percentage of its shipments that are exports (Figure 1). States with only one office do the best of all, with 15 percent of their shipments going out of the country. States with no offices, however, do almost as well, shipping 12.5 percent of their products overseas—a percentage that nearly matches that of states with as many as eight overseas trade offices, and equals or exceeds states with from two to seven offices. The degree to which a state government devotes its resources to promoting its manufacturers overseas appears to have little to do with how well those businesses do in the export arena.

How Relevant?

Washington, as it happens, is one of the country's most dramatic statistical examples. Despite its relatively low overseas trade office profile, it ranks fifth among the 50 states in total exports. Fully 28 percent of Washington's shipments are export-related; the total dollar amount, $9.86 billion in 1986, is only $1 billion or less behind the nation's second-, third-, and fourth-ranked exporters, and $8 billion behind nation-leading California, with its massive economy. With 5.4 percent of Washington's civilian employees working in exportable-goods manufacturing, the state ranks first in the nation. Yet its modest overseas trade office budget is one of the nation's lowest—far behind, for example, California's, which totaled $10.5 million in 1986 (the most recent year for which budget data are available).

When you advance the argument to state officials and businesspeople with expertise in exporting that Washington's overseas trade offices are irrelevant, however, you will meet largely with objection. Washington's statistics are dismissed as anomalous because of the size of both Boeing's civilian aircraft industry and the state's raw-log overseas exports. "Those numbers are skewed," said state senate policy analyst Forrest Bathurst, "by Boeing and forest products." Take away those two industries—both of which have done their exporting without state aid—and you have a more accurate picture, say Bathurst and others. The Department of Trade's Jeanne Cobb added, "That's kind of an oversimplification. There are too many other factors, like currency fluctuation and trade barrier changes. You can't isolate something as small as overseas trade office budgets from the bigger picture and draw the conclusion that the offices are irrelevant."

Figure 1: Effect of Overseas Trade Offices on Exports



SOURCE: *State Export Program Database, July 1988*

Global Offices

To Dick Conway, a Seattle-based economic consultant, small businesses cannot begin to think of exporting without state assistance. "It's a lot harder to work in overseas markets than it is to work domestically," he explained. "Offices are just trying to get people to understand the market, figure out the customs, learn the laws, and develop the contacts." Seafirst Bank's Dave Hayden, whose export work has taken him to at least 75 countries over the years and who now works in the bank's International Trade Finance Department, concurred. "When our clients go overseas," he said, "one of the places we encourage them to stop in at is the state trade office, to make contacts. I think it helps. It gives Washington's exporters an additional source of information. It gives them a place to hang their hat."

Even so, the lack of quantifiable evidence to support the argument for overseas trade offices has kept state investment low. In the last legislative session, a bill that would have opened 13 more offices—most of them in Europe—died in committee. "There was no sentiment in the senate for funding any more of these offices," Bathurst said. Largely, the senate's lack of enthusiasm was due to a corresponding absence of eagerness among most businesspeople. "In polling the small business community," he continued, "international trade assistance was rated the lowest in priority. There was no lobbying from the business community on behalf of the bill."

Bathurst attributed the lack of support more to a shortage of imagination on the part of most state businesses than to an informed opinion on the offices' relative worth. "Small business just doesn't think of exporting," he stated. Cobb, of the Depart-

ment of Trade, was of the opinion that the bill was trying to do too much, too soon. Overseas trade offices, after all, are still a new and largely unproven idea, and even she found the notion of overnight worldwide expansion a little hard to swallow. "That bill was proposing to open offices all over the globe," she said. "I think it's hard to rally support for something of that scope in a single short session. I don't think the lack of interest in that bill signals a lack of interest in exporting."

The bill was further hamstrung, however, by absence of evaluative data—"It's a tough program to evaluate," said Bathurst—and by lukewarm testimony from trade experts, most of whom suggested that beefing up existing offices is more important than opening up new ones. One Department of Trade official, who asked to remain anonymous, stated, "The Tokyo office is too small. You have to have a mission and know why you're there. You have to have quality and continuity. So much of doing business in Japan depends on making an impression and on establishing relationships. Too often, our office is there just to help governors do splashy trade missions."

To a degree, Seafirst's Dave Hayden agreed. "It's very important to approach the Japanese market with a first-class operation," he said. "It should be visually first-class." After a recent visit to Washington's and Oregon's Tokyo offices, he came away thinking that Washington can do better. "Washington's people are more qualified than Oregon's are," he acknowledged, "but our office just can't compare to theirs." Even so, he is an outspoken advocate of Washington's overseas trade office. In testimony before the state senate last session, Hayden advocated quality over quantity. "The offices are worthwhile, but they need to be chosen carefully. They must be very impressive in order to make a difference in Japan."

A Fledgling Art

Hayden feels, as does Bathurst, that the offices are an essential means of raising the collective consciousness of small businesses. "We're just not very good exporters, unfortunately," he admitted. "If it's easier to send something to Cincinnati than to China, it's hard to blame small business for staying in-country."

Having been rebuffed by the senate last time around, Forrest Bathurst has gone back to the drawing board to come up with a new way to help generate export business. He is also looking for a means to make state assistance accountable. "I'm working now on a project," he said, "that is investigating state-sponsored export trade companies. I don't know if we are going to revisit the international trade offices issue. One of the models we're looking at is the New York-New Jersey Port Authority Trading Company, which has overseas offices that charge for services. They've found a way to provide comprehensive services without spending a lot of state money."

That model, designed to gather all export-assistance services under one roof, helps would-be exporters get financing, helps them come up with a marketing plan, and facilitates contact with U.S. Department of Commerce officials and with officials overseas. The authority also gathers information on foreign markets and offers education services to novice exporters. "A business," Bathurst stated, "signs a three-year contract with the authority, which takes them by the hand and leads them through all the maze of documentation, legal stuff, and then, when there's a successful transaction, the business pays the authority a fee." Under that system, not only are a state's expenditures reduced, but the generation of fees gives state government a way of assessing the agency's worth. "With fees," Bathurst concluded, "you can at least say, 'This office has been generating this much money. . . .'"

In the final analysis, given the dearth of decent numbers and all, it is probably safest to report that the jury is still out on the value of overseas trade offices. Export assistance, for many states, is a fledgling science—or, more accurately, a fledgling art. While it is hard to find definitive evidence to support state offices, it is also hard to imagine not having them. If the numbers showing that overseas trade offices appear to have no impact on overseas trade prove anything, it is that states need to concentrate harder on the quality and the mission of their operations, and need to find a way to quantify the results of their offices' efforts before giving up on them entirely. And, most important of all, states need to provide the evidence of their offices' success before thinking about opening additional overseas operations.

Fred Moody is a staff writer for the Seattle Weekly.

AND IN OREGON...

The state of Oregon has a low profile overseas, but that will probably change. Oregon opened a Tokyo office in 1984 and additional offices in Seoul, South Korea, and Taipei, Taiwan, in 1987. "We have no specific plans to expand," said Oregon economic development official Tony Ellison. "Our strongest interest is for an office in Europe. Last January, we hired our first European trade officer, and he's putting together our strategy, which will include establishing a permanent presence there."

The state's Tokyo office is its largest, with a budget of between $500,000 and $600,000 per year and a full-time director, a part-time investment specialist, part-time trade specialist, and a full-time administrative assistant. The Seoul office, which is supported by the Port of Portland as well as the state, costs $60,000 a year and has a Korean director and an assistant. The Taipei office, at $90,000 to $95,000 a year, is also staffed with a director and an assistant.

According to the Oregon Department of Agriculture's Gary Roth, the offices, in combination, orchestrated the export of $1 billion worth of agricultural products to the Far East last year. Of that, Roth said, $216 million was Oregon-grown; the balance was grown elsewhere and brokered in Oregon. "That," he explained, "is about $65 million in growth over the previous year."

Tony Ellison says that the worth of the offices "is difficult to quantify. There's no bottom line, since we don't do sales. You can talk about assisted sales, trade leads, and trade shows, but it's all a guesstimate at best. Someone gets a sale—but how do you say that the office is responsible for 20 percent or 50 percent of that sale? There's plenty of anecdotal evidence that the offices are worthwhile, and I just don't see how you can do a lot over there without some kind of presence."

ABE

AMERICAN MANAGERS IN JAPANESE SUBSIDIARIES

HOW CULTURAL DIFFERENCES ARE AFFECTING THE WORK PLACE

BY SULLY TAYLOR

By the year 2000, the 250,000 Americans who now work for Japanese firms in the United States will see their numbers swell to the 1 million mark. Yet as their numbers grow, so too do the reports that all is not well with these U.S. employees of Japanese corporations. Disgruntled American executives are filing lawsuits against their employers, claiming breach of promise regarding promotions; enthusiastic U.S. managers who have attempted to meet their bosses halfway by studying the Japanese language have been encouraged to give up their efforts; American managers claim that they are cut out of the real decision-making process, which apparently occurs after they go home. Is this the vaunted Japanese management style that has produced so many books and attempts at imitation?

FROM BLUE COLLAR TO WHITE

Before exploring the reasons for the increasing number of conflicts between Japanese managers and their American employees, we need to look first at how the composition of the work force within Japanese subsidiaries in the United States has changed. Following the wave of manufacturing plant investments of the late 1970s and early 1980s, Japanese firms in the United States have expanded in two new directions: manufacturing plants are adding more American employees in such functions as design and research and development; and banking, investment, and trading firms have become more active, extending their services and becoming involved in the mergers and acquisitions usually dominated by U.S. firms. The result is that the number of white-collar employees employed by Japanese firms in the United States has increased dramatically in the last few years.

What difference does this make? Simply put, U.S. professionals who work under Japanese managers often find that their jobs are now less satisfying. A gross generalization is that, while American assembly-line workers have found Japanese management an improvement over conditions under American management, white-collar workers have found that conditions are worse. When the majority of U.S. employees in Japanese firms worked on the assembly line, the reports from the front were usually positive, but, as the balance shifted toward professional employees, the evidence of dissatisfaction has grown. The reasons lie in how the two cultures define one central concept: who does the firm exist for? This difference leads to crucial distinctions in job definitions, the concept of leadership, managerial behaviors, the choice of strategic decision-makers, and the practice of management development.

To the Japanese, a firm exists as much to provide a livelihood for its employees as to provide a return on assets for stockholders. Job security is not so much a strategic decision as a moral obligation. A manager's duty is thus to look out not only for the bottom line but for the growth of the company, for that is how the firm can ensure employment security and promotion opportunities for its employees.

American managers are not accustomed to this view. Their main responsibility is to achieve short-term profit goals. For U.S. managers, the firm's employees are human resources, assets much like financial capital and technology that are used to attain corporate objectives. They include themselves in the category of human assets and realize that if the company's goals are not achieved—or if the strategic goals change—they may lose their jobs. As a result, American managers tend to see their current positions as stepping stones to higher posts, often in other firms.

INDEPENDENT DECISIONS

This difference of perspective leads to a crucial deviation between the two groups regarding the concept of the job. For American managers, there is the expectation that a job entails a defined set of duties and responsibilities. Managers expect to be given the authority necessary to carry out their tasks. In a sense, an American manager is like the entrepreneur who is given a certain basket of assets and a clear goal and is rewarded for undertaking individual risk. In addition to the immediate compensation he receives, a manager also gains skills and experience that add to his market value. While this description understates the

need for team-player skills and knowledge specific to the firm, it underscores the necessity of clearly delineating the parameters of a job so that the individual's performance can be measured. An American product manager for a biotechnology firm, for example, wants the authority to allocate the marketing budget, decide on the product's message, and choose the outside consultants and advertising agencies that she feels are best for the project.

This idea of clear guidelines clashes with that held by Japanese managers. There are few job descriptions in Japanese firms, and those that exist are usually ignored. Responsibilities and duties are fluid, often shifting from one person to another within a group as needs and skills demand. The authority for carrying out the group's tasks ultimately rests with the boss. As a consequence, the Japanese manager usually expects that his American employees will clear most decisions with him. An American marketing manager who took a business trip that he felt was necessary was reprimanded upon his return by his Japanese boss for not getting clearance. For the American, the reprimand felt like an assault on his ability to make independent decisions; the Japanese manager felt that his subordinate had deprived him of important information and that his authority had been undermined.

The American manager's desire for clear job descriptions is, in part, a result of his concern about who is responsible for mistakes, as well as successes. American managers have learned that making errors can lead to being fired. But to their Japanese bosses, this attitude of pinning the blame on the right person is irritating. They feel that American managers spend more of their time worrying about who is to blame than concentrating on getting the job done. Most Japanese managers enjoy lifelong job security, so they rarely need to worry about affixing blame for what goes wrong.

QUESTIONING AUTHORITY

Although American managers want to know who holds what and how much authority, they display a tendency to question the legitimacy of that authority. In the United States, in fact, there is almost a sense of machismo that comes from defying authority. This creates an interesting paradox: the American manager needs to know how much authority he has, but he is constantly vulnerable to assaults from his subordinates. He survives by developing charisma. American managers rely as much on their personal characteristics as on their position for legitimacy, and these characteristics form the basis of executive leadership.

To understand the Japanese concept of leadership, we need to look at how Japanese managers achieve leadership positions. Japanese managers in the United States are the products of a system that rewards loyalty and effort with a clear and orderly progression within a hierarchy of authority. Because the firm exists largely for the employees, managers are fairly certain of being retained and allowed to progress. All Japanese managers have been through a fiercely competitive and grueling educational system, and their membership in management ranks is evidence of their survival and competence. Once a manager has proven that he has a certain level of ability —by making it through the educational system and into management ranks—he needs only effort (rather than charisma) to achieve middle management positions.

This fundamental difference in the basis of leadership means that American managers must exhibit a very different set of behaviors than their Japanese counterparts. To avoid assaults on their authority, they must act confident and knowledgeable — even if they lack both qualities. This attitude is irksome to Japanese managers. The president of a Japanese subsidiary in the Northwest asked, "Why can't young American MBAs exhibit more humility? They are just learning about things, and they should be more modest." An American executive who tries to appear more confident or knowledgeable than he truly is often is perceived as insincere or dishonest.

How advice and criticism is given and received is another area of conflict between the two styles of leadership. Japanese managers may be annoyed by subordinates who disagree with them, but they don't feel threatened by such incidents, nor do they feel the need to always appear confident and fully knowledgeable. Knowledge is a resource to be shared, rather than hoarded as a means of maintaining superiority. In Japan a subordinate can contradict his boss's statement—politely, of course—without fear of retaliation. The Japanese manager feels secure in his position and does not perceive conflicts with employees as a test of his competence. For American managers, who are instilled with the need to prove their individual worth so that they can be rewarded or move on to a new job, knowledge is a personal asset, and challenges to authority can be perceived as personal threats.

When Japanese and American managers interact in the job setting, these different views of leadership and competency provide the potential for conflict. Japanese managers, who admit when they don't know something, often expect the same behavior from the American managers who work for them. American managers may feel irritated by their Japanese bosses' attempts to provide knowledge that contradicts theirs, particularly if the disagreement takes place in front of subordinates.

TRY REASONING FIRST

Closely related to the concept of leadership is management behavior. American managers are keenly aware that, in addition to inspiring confidence through personal charisma, they must interact with their subordinates in a manner that induces workers to stay with the organization. Look, for example, at how managers ask their subordinates to do certain tasks. The most common tactic used by American managers, according to a survey conducted by University of Washington professor Terrance L. Albrecht, is to offer the subordinate reasons why he or she should comply. Failing that strategy, the boss resorts to friendliness. Both tactics reveal a desire to ensure a positive working relationship between the manager and the employee.

In Japan, managers also prefer reasoning as a compliance strategy. If reasoning doesn't elicit the desired response, managers rely on assertiveness, on simply ordering the subordinate to do something. Like a military commander giving orders, the Japanese manager in Japan is relieved of the necessity of trying to gain the subordinate's goodwill, and there are no repercussions for the suspension of civilities. But what happens when the Japanese manager is transferred to the United States?

According to a recent study on compliance-gaining involving managers in Seattle, Portland, and Vancouver, Japanese managers don't seem to change their management style when they come to the United States. While the survey's sample was small, it suggests that the assertive manner in which Japanese managers ask American professionals to do things is likely to be per-

ceived as brusque or rude, adding to the sense of frustration the American manager already feels from vague job descriptions and a mismatch between authority and responsibility. In addition, Japanese managers commonly tell their American subordinates that they should comply with a request because it is for the company. This tactic makes sense if all employees share the view that the company exists as much for them as for the stockholders, but it's not likely to carry much weight with U.S. employees who are unaccustomed to seeing their firm in this light.

The question of trust is another source of frustration for American managers working in Japanese firms. While Japanese executives are prepared to share a great deal of information with their American subordinates, strategic information is guarded more carefully. In a 1989 study by Vladimir Pucik of the University of Michigan and his associates, Japanese managers indicated that they felt wary of sharing such information because the possibility that an American manager will leave for another job always looms large.

A GREAT JOB, A POOR CAREER

The differences in American and Japanese cultural perceptions of the firm also affect human resource management practices. As might be expected, Japanese firms in the United States offer employees a greater feeling of job security, and, for that reason, Japanese managers have difficulty accepting employee turnover as a fact of life. In a recent speech to a group of managers in a high-tech firm in Seattle, the president of a Japanese subsidiary in Vancouver commented that he is always asking his American managers to reduce turnover, a request they have trouble understanding since attrition is already low. Management turnover too is lower in Japanese subsidiaries in the United States than in comparable U.S. firms, but even though American professionals remain, they criticize their employers for the lack of career opportunities and performance appraisals.

In Pucik's study, a significant proportion of the U.S. managers surveyed felt that their career advancement opportunities were more limited in a Japanese firm than in an American corporation. There is little management or executive development, they said, and Japanese multinational corporations have more Japanese in the top management ranks of their overseas subsidiaries than comparable U.S. or European firms. Finally, the headquarters of Japanese multinational corporations have remained essentially closed to foreigners. American managers reported that, in a sense, they may have great jobs working in Japanese subsidiaries, but their careers are less than satisfactory.

THE AMERICAN'S DESIRE FOR CLEAR JOB DESCRIPTIONS IS A RESULT OF HIS CONCERN ABOUT WHO IS RESPONSIBLE FOR MISTAKES.

If U.S. managers find this lack of career opportunity frustrating, they are equally disappointed by their Japanese managers' failure to give performance appraisals. In Japan it is considered as ill-mannered to praise a member of one's family as it would be to praise oneself. Consequently, direct praise is not often heard in a Japanese company, which operates as a kind of family. When a Japanese manager is transferred to the United States, he finds it hard to give positive feedback to his American subordinates. One American executive who has worked for a Japanese subsidiary for 15 years commented that he has had one performance evaluation in all that time and has never been told directly that he's doing well.

A TRADEOFF?

Given the picture that we've painted, it would seem reasonable to expect that American managers would not last long as employees in Japanese subsidiaries. Yet turnover is apparently rather low. Why?

First, it's important to remember that many Japanese subsidiaries have not been in the United States long and have only recently started hiring large numbers of white-collar workers. Second, the American manager's sense of greater job security may be overriding his frustrations. Given the period of corporate downsizing that the United States has just experienced, job security may be highly attractive. Moreover, American managers in Japanese subsidiaries feel that the parent company exhibits great patience and a long-term perspective with regard to such performance goals as profitability. This may be a welcome change from the short-term horizon used in many U.S. firms. And, finally, American managers may find that their Japanese bosses display a more positive attitude toward their mistakes, which allows the Americans to take greater risks.

Even if American managers are not now leaving, they may in the future if they're presented with more attractive opportunities for upward mobility in U.S. firms. Given that prospect, Japanese subsidiaries in the United States would need to take several steps to avoid increased turnover. First, the home office should clarify how it sees its overseas subsidiaries—as members of the Japanese corporate family or as foreign contractors. Assuming that the U.S. subsidiary is perceived as an integral part of the firm, the second step would be to treat the careers of American managers as seriously as those of Japanese managers and allow the Americans to have a greater involvement in all strategic decision-making. The doors of the head office must be opened to foreign managers. Finally, both Japanese and American managers should receive cross-cultural training, with an emphasis on understanding managerial behaviors and learning new skills, such as giving positive feedback or acknowledging challenges to authority.

The important point is not that there is friction between Japanese managers and their American subordinates, but rather that the conflicts provide both parties with an opportunity to examine the values and attitudes that form the basis for their styles of working and managing. Learning to solve the conflicts means acquiring new understanding and new skills, which can only increase the working effectiveness of everyone in the work place.

The reality is that Americans and Japanese, given the rising amount of foreign direct investment in both countries and the increasing number of corporate alliances, will become ever-more-frequent work place companions. The opportunity to learn new ways of working and managing is one that both sets of managers should welcome.

Sully Taylor is an assistant professor of international business at Portland State University. She worked in Japan for seven years, including three years at Sumitomo Metal Industries.

Gallery

PHOTOGRAPH COURTESY OF NORTHWEST FROZEN FOODS

Strawberries, covered with layers of sugar and packed in barrels, were sent from Chehalis to Eastern jam factories. 1920.

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PACIFIC NORTHWEST EXECUTIVE

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Vol. 6, No. 4 October 1990

Skyrocketing Health Care Costs

Commentary

A Canadian Perspective

The Canadian health care system has generated strong interest from U.S. policy-makers, health care providers, and corporations. Interjurisdictional comparisons, however, are not always easy, for health care systems are largely dictated by the culture and political philosophy of the region. British Columbia's system cannot be transposed in whole from its Canadian context into that of Washington State. Nonetheless, there are enough similarities to suggest that selected segments and experiences of the B.C. health system may be adaptable to Washington State.

Before considering this task, however, it is important to understand some basic characteristics of Canada, and the social and political environment within which health care services are provided. Canada has a population of 27 million people, spread over 10 provinces and two northern territories. British Columbia has a population of approximately 3 million—about two-thirds the size of Washington's population. The province's landmass of 367,000 square miles is approximately five and a half times the area of Washington State.

It has only been in the last three decades that the federal and provincial governments have taken an involved role in the funding and delivery of health care. In 1957 the federal government concluded several years of study with the introduction of a national program of publicly financed hospital insurance. The two levels of government—federal and provincial—share the costs of acute hospital care.

In 1966 a similar arrangement was established for physician services. Both hospital and physician insurance programs require the same conditions for cost sharing: accessibility to care by all residents, universality of coverage, portability of coverage between provinces, and comprehensive coverage for all approved services. In addition, cost sharing is contingent on the public administration of the program.

As it now stands, British Columbia's health care system is comprehensive, privately provided, and, for the most part, publicly funded. Health care eligibility in British Columbia is based on residency, as opposed to employment status, and approximately 99 percent of all residents are covered by provincial programs.

Public-sector expenditures represent 75 percent of the health care activity in British Columbia, and private-sector expenditures are primarily limited to extended benefits and dental care. The Ministry of Health is responsible for managing and funding:

- ►hospital and nursing home care,
- ►medical care by physicians,
- ►medical care by dentists for selected oral surgery,
- ►supplementary services by naturopaths, physiotherapists, massage therapists, optometrists, chiropractors, and podiatrists,
- ►noninstitutional continuing care,
- ►disease prevention, health promotion, and public health services,
- ►institutional, residential, and outpatient care for the handicapped and those with mental health problems,
- ►provincewide ambulance and air-evacuation service, and
- ►prescription drugs.

Health care services total almost one-third of the provincial government's budget, and those expenditures have grown 145 percent, from $2 billion (in Canadian dollars) in 1980 to $4.8 billion in 1990. On a per capita basis, the province's costs rose from $720 to $1,506.

By the end of the century, the province will have 33 percent more senior citizens (who consume nearly 50 cents of every health care dollar) and more than 400,000 new immigrants. In the next 20 years, British Columbia's population will increase by 32.5 percent, to 4 million people. If existing patterns of use continue for hospital and physician services, these projected increases will further strain the province's limited health care resources.

Despite the pressures that have contributed to increased health care costs in the last decade, the Ministry of Health has been able to contain expenditures through such measures as the establishment of global budgets for hospitals, the introduction of hospital management programs, an increased focus on outpatient surgery and in-home care, a cap on physician expenditures, and efforts to control the number and location of physicians in the province.

Changing demographics, an aging population, and increased environmental concerns will continue to challenge both Washington and British Columbia, and new strategies to ensure the efficiency and effectiveness of the health care system will be needed. Perhaps Washington—and its employers who support health care—can observe how British Columbia addresses its system pressures and adopt what is appropriately suited to the American health care system.

John Jansen
Minister of Health, British Columbia

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Health Care Tradeoffs:

Comparing the Canadian Single-Payer and the American Multipayer Systems

American health care is the most sophisticated, the most expensive, and, some would argue, the most wasteful in the world. Although the United States is respected as the leader in the development of health care technology, it spends an enormous amount—$600 billion or approximately $2,000 per person—on health care each year. Compare that figure to $500 per capita in Great Britain and $200 in Singapore, and keep in mind that all three countries have approximately the same death and disease rates.

Germany currently spends 8.1 percent of its gross national product on health care, and Japan spends 6.7 percent, which was about the same share of GNP that the United States paid 25 years ago. Since then, health care costs as a percent of GNP in the United States have grown to 11.5 percent, and analysts predict that if current trends continue, we will be paying 15 percent by the year 2000.

Despite the benefits that sophisticated medicine brings them, most Americans think that something is wrong with their health care system and that something needs to be done to fix it. When Harris/Harvard polled Americans, Canadians, and the British recently, they found that Americans were the least satisfied with the health care available to them. Sixty-one percent admitted that they would prefer a state-administered, universal system—like the one in Canada.

American business is exasperated by its inability to control the health care costs it incurs through its employee health benefits programs. Employers pay almost 30 percent of the total U.S. health care bill, and they can only watch as their health care costs climb 15 percent, 20 percent, 30 percent from year to year.

Charlie Harris, the president of Spencer Industries, an aircraft parts manufacturing firm headquartered in Seattle, says, "On a scale of zero to 10, I'd rank our ability to control our health care costs at zero. In 1987 my health care costs for 75 employees and my communications costs were each $125,000. Because we've been able to manage our communications costs by buying wisely, we've doubled our usage and still kept the costs at $125,000. My health care costs are now $200,000, and we have the same number of employees."

Every year, employers see health care costs cutting more deeply into their firm's bottom line. Health care expenses now add $700 to the cost of a car built in the United States, but only $223 to a car built in Canada. Andrea Castell, the director of the Health Care Purchasers Association, states, "When you're managing a business in an international competitive environment, you have to control all your costs to stay competitive. It doesn't matter if you're a Fortune 100 company or a company with only 20 employees, businesses large and small are facing the same dilemma. They simply can't get a handle on these costs."

Aaron Katz and Marcia Schwendiman, researchers at the University of Washington's School of Public Health and Community Medicine, recently published a white paper entitled *Paying the Price: Health Care Spending by Businesses in British Columbia and Washington State*. According to their report, Washington employers in 1988 spent between $2,317 and $2,756 per employee on health care—an average, depending on the company's size and industry, of $1,788 to $2,227 per employee for health benefits and $529 per employee in state and federal taxes.

Businesses in British Columbia pay less than half as much. During the same year, they spent between $392 and $491 (in U.S. dollars) per employee in health benefits

BY JACK WHELAN

that supplement the provincial plan. They spent an additional $774 per employee in taxes to their provincial and federal governments, for a total of $1,166 to $1,266 per employee per year for health care.

For this reason, many U.S. business managers and policy-makers have been looking to the Canadian system to see if they can learn anything from its success. In this article, we present a general overview of the two systems (based on the Katz and Schwendiman report) and then take a look at each in terms of its cost and quality.

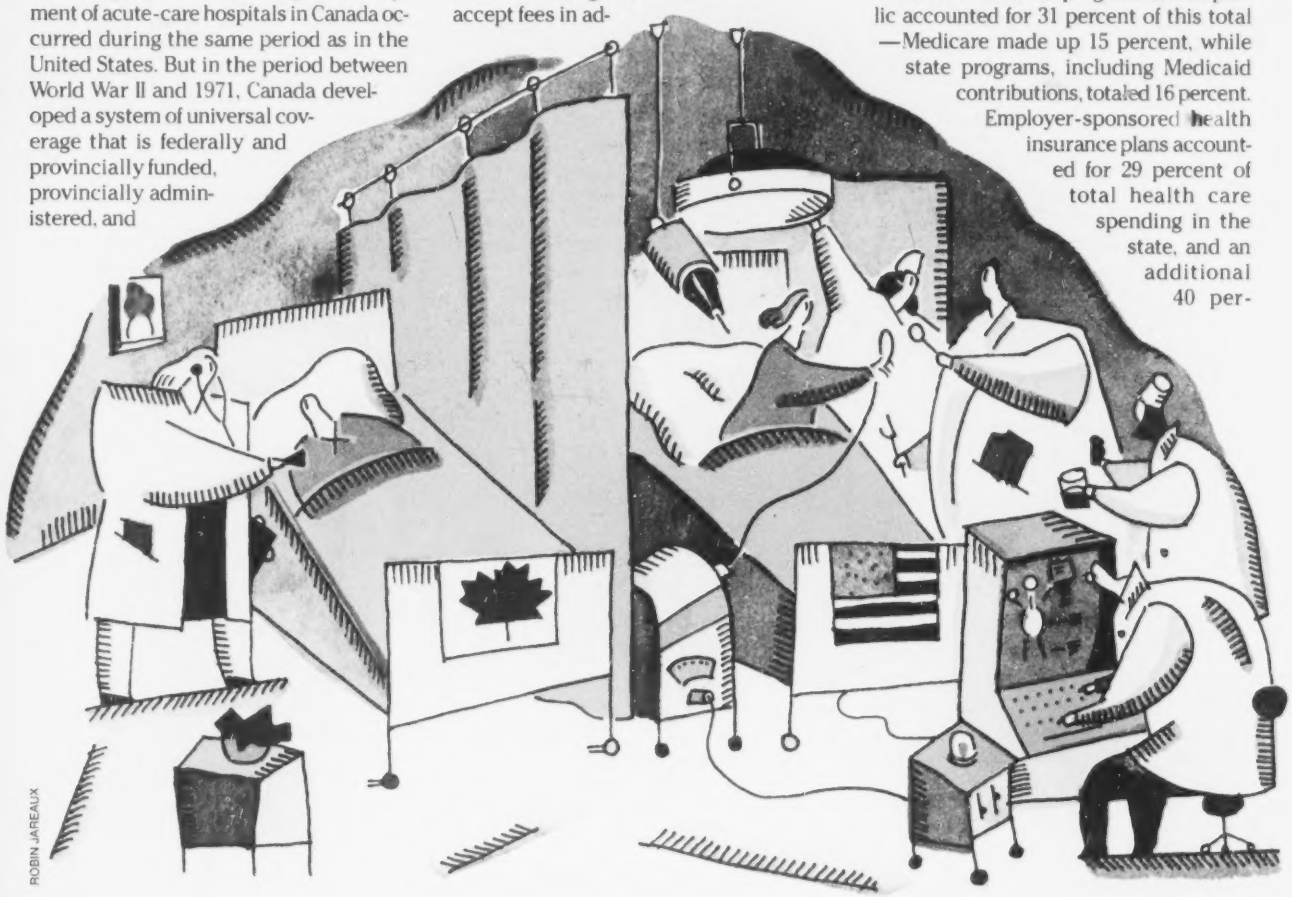
From Parallel Lines to Divergent Paths

Until the mid-20th century, the basic features of the United States and Canadian health systems evolved along parallel lines. Historically, health care in Canada, as in the United States, was provided through private means. The professionalization of medical practice and the rapid development of acute-care hospitals in Canada occurred during the same period as in the United States. But in the period between World War II and 1971, Canada developed a system of universal coverage that is federally and provincially funded, provincially administered, and privately provided.

In British Columbia, as in other Canadian provinces, the Ministry of Health governs and manages between 70 percent and 80 percent of all health care activity. The remaining 20 to 30 percent represents employer-financed employee benefit programs, which supplement the government's program. Insurance companies are prohibited from covering the services provided by the government plan. Providers—physicians, nurses, and other health care workers—are paid by the government, although most are not employed by it. Most physicians and dentists work on a fee-for-service basis; other health care professionals are salaried through private hospitals or other privately owned health care institutions. In Canada, there are few economic incentives for a physician to give more care to someone who is willing to pay more for it. It is illegal for a physician, even if she has a more marketable reputation than her colleagues, to accept fees in addition to what she receives from the government. This measure ensures that everyone has equal access to the same basic quality of care, regardless of his or her means.

Katz and Schwendiman note that British Columbia spent just over $4.3 billion (in U.S. dollars) on personal health care services in 1988. The $3.2 billion Ministry of Health budget paid for 75 percent of that total. The province's health care system is primarily financed by provincial government revenues (41 percent), transfer and cost-sharing payments from the federal government (40 percent), and premiums paid by individuals or employers (14 percent). The nonprovincial sector accounted for an additional $1.1 billion, which is about 25 percent of total personal health care spending by British Columbians.

During the same period, overall health spending in Washington State totaled approximately $8.8 billion and was financed by a wide range of public and private entities. State and federal programs for the public accounted for 31 percent of this total—Medicare made up 15 percent, while state programs, including Medicaid contributions, totaled 16 percent. Employer-sponsored health insurance plans accounted for 29 percent of total health care spending in the state, and an additional 40 per-



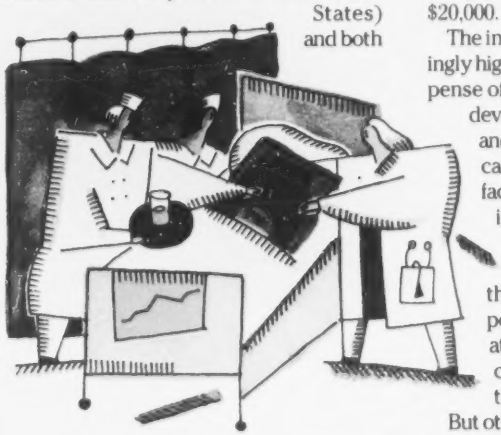
ROBIN JAREAUX

cent represented out-of-pocket payments by consumers.

The system in British Columbia is 75 percent publicly funded, 25 percent privately funded. In the United States, it's the reverse—health care is 30 percent publicly funded, and 70 percent privately funded. But the most critical difference isn't who pays, as much as how many pay. British Columbia's single-payer system is much more effective—in terms of controlling costs—than the multipayer system now in place in Washington.

Why So Expensive?

The Canadians spent 8.7 percent of their gross national product on health care in 1988; Americans spent 11.5 percent. Before 1971, when the Canadian and American funding processes were more similar, both systems consumed about the same share of national income (7.4 percent in Canada and 7.6 percent in the United States) and both were on the rise. Once Canada's nationalized system was in place, the percentage Canadians spent on health care stabilized, while the U.S. share continued to rise. By 1981 the two nations' shares were 7.7 percent and 9.2 percent, respectively. During the 1982 recession, the share of national income that went to health care rose sharply in both countries—to 8.6 percent in Canada and 10.2 percent here. After that, the Canadian share stabilized, and the U.S. share continued to grow. It now stands at more than 11 percent.



Katz and Schwendiman show that these national trends are reflected at the state and provincial levels. Washington State's health care spending for 1987-89 (about $2 billion) is nearly 100 percent higher than it was in 1981-83—a 12.5 percent annual increase. From 1982 through 1988, hospital revenues grew by an average 14.6 percent per year. The total earned premiums of the state's health care service contractors and health maintenance organizations grew from approximately $1 billion in 1982 to just over $2 billion in 1988, a 14.3 percent annual increase. This rate of health care inflation took place during a time when the consumer price index increased an average rate of only 3 percent.

Why has health care become so expensive? The price of health care throughout the developed world is much more costly than it was before World War II. In the old days, quite simply, people died cheaply. A doctor carried most of the technology available to him in his black bag. If a patient went into kidney failure, there was little a doctor could do. Now the patient can be put on a renal dialysis machine and live for many years—at an annual cost of about $20,000.

The introduction of sometimes astoundingly high-priced new machines and the expense of training people to use them, the development of new and costly drugs, and the advent of high-tech intensive care units and transplant centers are factors that have enhanced the quality of health care at a significant price. Add to this the pressures put on the health care system by the AIDS crisis and the graying of the population—which no longer dies at home, but in expensive long-term care facilities—and it's no wonder that costs are going off the charts.

But other developed countries face these problems, too. Why does the United States do such a poor job, relative to, say, Canada, at controlling its health care costs?

Comparing Administrative Costs

One reason is that the American multipayer system is expensive to administer. In Canada, providers have to deal with only one payer—the provincial government. In the United States, providers seek payment from the state government, the federal government, a wide variety of insurance companies, which have their own different documentation requirements, and individuals, many of whom they need to chase for payment.

Robert Evans and his colleagues at the University of British Columbia's Health Policy Research Unit pointed out in a March 1989 article in the *New England Journal of Medicine* that administrative expenses represent the most extraordinary difference between Canadian and American spending. In the United States, administrative costs total .51 percent of gross national product; in Canada, the figure is only .11 percent. In 1985 administration accounted for $95 of U.S. per capita spending on health care; in Canada, the cost was only $21.

Katz's and Schwendiman's study illustrates a similar gap between Washington State's administrative expenses and those of British Columbia. They found that the state's administrative spending was $2.5 billion in 1988, or 29 percent of total health care expenditures. In British Columbia, administrative costs equaled only 19 percent, or 66 percent *less* than Washington's costs.

Why is it so much more efficient to administer health care in Canada? In Canada, there are few costs to determine coverage and eligibility—everyone is eligible. Claims payments are simple and cheaper to process. Providers don't have to hire special staff to deal with the variety of documentation requirements. There are no consumer marketing expenses, and there are no allocations for shareholder profits.

How Much Does Your Doctor Make?

Canadian physicians are paid less than American physicians. In 1987, according to Canada's Department of Health and Welfare, their after-expenses income averaged $84,700 (in U.S. dollars), compared with the American average of $132,300 for the same year.

From 1971 to 1985, Robert Evans determined, the share of American gross national product that goes to physicians rose by more than 40 percent; the Canadian physicians' share increased by 10 percent. The Canadian one-payer system, in addition to being more efficient administratively, is also more effective in controlling doctors' fees. In Canada, physicians must negotiate with the provincial health ministry for fee levels. The province implements the agreed-upon fee structure in stages, and if the average gross receipts per physician rise faster than a predetermined rate, subsequent scheduled fee increases are scaled down or eliminated. In addition, there are ceilings on the quarterly gross billings of in-

dividual physicians. Billings that go over this limit are reimbursed at only 25 percent of the allowable fee.

This safeguard works to ensure that physicians don't compensate for the fee caps by scheduling unnecessary services. A physician who might deal with a patient's foot problem by setting up five visits, one for each toe, would find it harder to be paid for his services.

As might be expected, Canadian physicians chafe under these restrictions, but this has not made medicine a less attractive profession for young people to enter. Canadian physician and health care analyst John Iglehart notes that medical school applications are higher than they were a decade ago. The pool of Canadian physicians has grown at a faster rate than the population every year since 1965. The number of physicians who left Canada to practice in the United States or elsewhere fell from 663 in 1978 to 386 in 1985. Physicians remain, by a large margin, the highest-paid professionals in Canada.

The number of U.S. physicians has also grown significantly in proportion to the population since 1975. One might think that in a market economy such as ours the greater number of physicians competing for a share of the medical services pie would drive physician fees and income down. But according to the American Medical Association's *Socio-Economic Characteristics of Medical Practice*, after-expenses income for U.S. doctors rose from $64,600 in 1978 to $104,100 in 1983, and stood at $132,300 in 1987. Such increases can lead business executives to wonder about the need for more doctors. As Spencer Industries' Charlie Harris states, "I've come to the conclusion that every time we graduate a doctor, we're adding another $100,000 to $150,000 to the nation's medical bill."

Analysts explain that market mechanisms simply do not work with regard to the health care system. People don't shop around for the best price when they need a doctor in an emergency; even when they do evaluate one doctor against another, it's not price they care about, it's quality. Americans don't want the cheapest, they want the best, and so expect to pay a high cost. And for many Americans, paying more doesn't hurt their pocketbooks very much since a third-party payer covers the cost. There is very little incentive for American health care consumers to look around for the least-expensive care.

As a result, the more physicians that come into the labor pool, the more they can, and do, charge in order to maintain their incomes. If a doctor sees fewer patients, he can raise his fees or increase the number of services he provides. The American multipayer system is virtually powerless to resist the pressure for higher physician incomes.

Controlling Costs

Payers adopted several strategies in the 1980s to offer some resistance to these cost pressures, but none have worked effectively for very long. In the early 1980s, for instance, the federal government introduced a system of diagnosis related groups (DRGs) to restrain Medicare costs. Before this new prospective payment system was introduced, hospitals had virtually a blank check to charge what they wanted and to run as many procedures as they thought necessary. They just passed the bill along to the government. The DRG payment system set an average price for everything involved in treating particular health problems. A diseased gall bladder, for example, could be billed at $5,000. If a hospital treated the patient for less than the $5,000 limit, it could keep the difference. If the patient was a more difficult case and required care that cost more than the DRG fee, the hospital had to absorb the extra expense.

This new payment system gave U.S. hospitals an economic incentive to administer health care as inexpensively as possible, and one way they did so was to get patients out of their facility as quickly as they could. Hospital stays for patients over 65 years old averaged 13 days in 1970; by 1985 the average for the same group dropped to 8.8 days. But as hospital stays and revenues went down, the system compensated with an explosion of more frequent and higher priced outpatient care services. After a short but significant dip in the growth rate of health care costs in 1984, the level of annual percent change went right back where it was before the introduction of diagnosis related groups.

The DRG prospective payment system demonstrated that a powerful payer, like the government, can be effective in controlling costs; the hospital cost growth rate now is half of what it was in the early 1980s. But we now know that when we apply pressure to one part of the system, it doesn't take long for supplier counterpressures to push out in another direction.

In the last decade, businesses have also tried a number of strategies to contain their health care expenses. In some cases, they've shifted part of the cost to their employees by requiring them to pay part of the premium. Businesses have also introduced plans with increased copayments and deductibles in an effort to change employee attitudes about the "free" and "unlimited" health care they think they're entitled to. Workers are also finding themselves being pushed into managed care programs, like health maintenance organizations (HMOs) and preferred provider organizations (PPOs), which theoretically give employers some bargaining clout. And more recently, payers administering these managed care systems are becoming more aggressive about scrutinizing provider decisions, questioning or even refusing to pay for the tests and procedures they believe are unnecessary. These methods have had only limited success. The cost pressures are too powerful and too complex to be controlled effectively by the uncoordinated efforts of so many different paying entities.

Quality and the Rationing of Care

If the one-payer system is more effective than the U.S. multipayer system at controlling costs, does that mean that the more expensive American system provides better quality? "It's hard to say," says Aaron Katz. "When you look at most of the indicators, there isn't much difference. In the case of infant mortality rates, British Columbia seems to have a slightly lower rate than Washington."

But critics of the Canadian system point out that, while it does provide universal coverage inexpensively, it also frequently faces capacity limitations that force the rationing of care. In Canada, there are waiting lists for many elective procedures; in fact, British Columbia has 300 patients who need heart bypass surgery. The province was forced to contract with hospitals in the United States, including the University of Washington Medical Center, to provide these patients with timely care and help relieve the capacity pressure.

Critics also indicate that British Columbia and other Canadian provinces don't have the number of sophisticated machines and special-care centers available in the States. There are nearly eight times

more magnetic resonance imaging machines and radiation therapy units per capita in the United States, more than six times as many lithotripsy centers, roughly three times as many cardio catheterization and open-heart surgery units, and slightly more organ transplant centers.

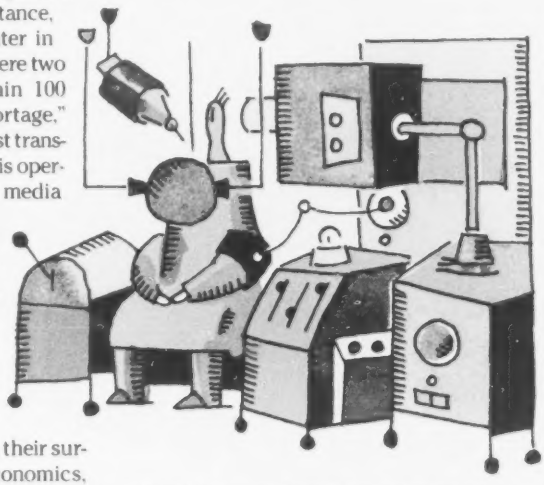
But Americans may have more high-tech care than they need. Fairfax Hospital in Falls Church, Virginia, for instance, opened a heart transplant center in early 1986, even though there were two other transplant centers within 100 miles. Because of an "organ shortage," the hospital didn't perform its first transplant until almost a year later. This operation received a lot of positive media coverage, and there were soon announcements that five other hospitals in the region would be establishing heart transplant centers, too. Is this quality care or an irrational and wasteful use of medical resources?

Hospitals feel forced to buy this equipment because of competitive pressures that threaten their survival. In the world of medical economics, the most expensive hospitals are also the most competitive. "The hospitals that have done well in the past 10 years," explains Bob Crittenden, the Special Health Care Assistant to Washington's Governor Booth Gardner, "are the hospitals that have gone heavily into technology. Those that have chosen not to comply have been at a competitive disadvantage and have lost. Hospitals need to buy these machines to attract the doctors who bring the patients."

Arnold Relman, the editor of the *New England Journal of Medicine*, states that "new machines and procedures can be widely applied long before there is evidence of whether they're any good." They may not hurt people, he said, "but lots of things that don't hurt people don't help them either."

Relman thinks that current studies assessing effectiveness are not systematic enough and just scratch the surface of the work that must be done. "We need to generate information about new health practices, what works and what doesn't, then feed that information back to doctors, and integrate it into the payment system," he says. "If it becomes clear that a certain procedure is worthless, the insurers should say, 'We're not going to pay for it.' If a technique is still unproven, the insurer can say, 'We'll pay for it only if the patients are part of a clinical trial.'"

But when payers control what the providers can do, another quality issue is swiftly raised. Because payers have yet to find a way to limit the overall level of billings in a multipayer system, they are starting to scrutinize minutely the behavior of individual physicians. In Canada,



physicians must live within budgetary constraints, but there are no laypeople looking over their shoulders, second-guessing them or refusing to pay for certain procedures. This is happening with greater frequency in the United States and is, in all likelihood, the future for managed care in the absence of systemwide controls. Critics of this trend in managed care question whether patients will be receiving the medical care determined by the expertise of their doctors or by the cost consciousness of the third-party payer.

Is the quality of care better in Washington than in British Columbia? It depends on how you look at the tradeoffs: on the one hand, you need to balance British Columbia's universal coverage with the way it rations care. On the other, you have to balance the greater sophistication and capacity for care in the United States with the 31 million people who have no coverage at all.

And how does one weigh the problems that loom in the future for both systems? Many Canadians are concerned that the spending caps create an adversarial relationship between the government and health care providers that prevents rational, cooperative planning to meet the system's shifting needs. Frustrated doctors and nurses can strike in the Canadian system, and the effect can be devastating. When nurses called a strike in British Columbia recently, patients suffered because there was no alternative system to handle their care. When Group Health nurses went on strike last year in Seattle, patients could be transferred to other hospitals.

Americans, apart from their concern about the runaway costs they pay, are reluctant to support any trend in managed care that infringes on the autonomy of their physician. They fear a "cookbook" style of medicine that has rigid rules that will negatively affect the quality of care and limit the scope of choices available to them as consumers.

The Outlook for Reform

It seems unlikely that Americans will go to a centralized system like Canada's. But Americans are learning that the one-payer system is simpler and less expensive to administer and creates a powerful agent in controlling the costs of a system that otherwise progresses unhindered. The complex engine that drives health care costs must be confronted by an organization powerful enough to keep it in balance. The marketplace doesn't work and, as we learned by our failure to control costs in the 1980s, a piecemeal approach by payers can't work. If payers aren't able to coordinate their efforts to confront providers as a united force, businesses and the American people may have to demand that the government step in.

But on a more fundamental level, Americans need to moderate their expectations of the health care system. "All of us have conspired to create the problems we're experiencing now," Aaron Katz says. "We expect the system to do anything and everything, and the medical system has gone along by promising that it can deliver."

It can't, and we can't afford its attempts to do so. But dealing with health care does not easily lend itself to the logic of an accountant. Health care is an emotional issue, and we deal with it in ways that mirror our dread of disease and death. Perhaps the basic point that we need to question is whether we as a society can live with the limitations of health care.

Jack Whelan is a lecturer in business communications at the University of Washington and a free-lance writer.

As Jack Whelan's article and our *Paying the Price* report state, businesses in both Washington and British Columbia have a long tradition of sponsoring health benefits for their employees. Although our preliminary data indicate that B.C. employers get a bit more mileage out of their health care dollars, the numbers cannot fully capture the importance of health benefits within the work environment. How do these benefit packages, for example, affect management-employee relations? Are companies responsible for providing health care?

We discussed these and other questions with three firms that operate in both Washington and British Columbia: Company A is a large service-sector firm, Company B is a medium-sized distributor of industrial products, and Company C is a small transportation-sector distributor and manufacturer. Of the three firms, only the B.C. branch of Company C does not offer an employee health plan (to augment provincial health coverage).

The firms in both locales believe that providing health benefits is part of corporate social responsibility. In addition, they say, they could not compete successfully for skilled workers without offering health plans. The Washington-based president of Company C stated that attracting and retaining competent people hinges on his ability to offer a compensation-benefits package that mimics those of larger firms. All three Washington companies dismissed the idea of higher wages *in lieu* of health benefits as a poor option; individual policies are simply too expensive for people to afford.

Profiles in Health Plans

Company A's Washington operation employs more than 400 workers. Hourly unionized employees receive benefits that are comparable to those for salaried employees, with the exception that the latter receive orthodontia and vision care. Employees pay 30 percent of their premium costs on average, plus coinsurance and deductibles. The company has attempted, with only limited success, to develop control strategies. At this point, the firm is considering flex benefits and the need to increase cost sharing or reduced levels of nonhealth benefits to maintain an acceptable level of health coverage.

The B.C. office of Company A has 80 employees. The salaried employees' health plan is company-insured and administered by a third party. Hourly workers are covered by a separate union plan, to which the firm pays premiums. The service firm pays the provincial plan premiums and supplements provincial coverage with a health, vision, and dental package. Workers pay 50 percent of their dependants' health benefit costs, annual deductibles of from $25 to $50, and 20 percent (up to $2,000) of the supplemental plan. The company says that changes in its expenditures and benefit plans during the last five years have been negligible, except for "manageable" premium increases.

In Washington, **Company B**, with 380 employees, has been self-insured since 1985 and uses a third-party administrator. Health benefits include medical, dental, and vision care, and the firm offers incentives for choosing out-patient care and reducing hospital stays. Workers pay 30 percent of their premiums, but don't have to contend with copayments or deductibles.

Company B's British Columbia office has 92 employees and, in an unusual arrangement for a Canadian firm, became self-insured, with a third-party administrator, late in 1988. The firm supplements the provincial plan with medical, dental, and prescription drug coverage. Workers pay a flat $100 annual deductible and a 10 percent coinsurance charge, but no premiums. Although its health spending increases have been somewhat greater than its profit growth, the company is not considering additional cost control measures.

Company C employs nearly 70 people in Washington. The transportation firm offers four comparable health plans, and the employees pay roughly 25 percent of the premiums, plus deductibles, copayments, and coinsurance. Recent health care costs have increased at a rate of 20 percent per year, which the firm attributes to higher administrative fees, not a greater use of health services by employees. The employer is extremely dissatisfied with the "ineffective and unresponsive" manner of the four plans, and is seriously considering self-insuring—a bold strategy for a small firm.

Company C's branch in British Columbia does not provide employee health benefits for its nine workers. The company claims that the provincial plan is adequate and, when given a choice, workers have opted to receive transportation subsidies, rather than additional health care benefits.

Affordable Benefits

All three Washington firms and one of the B.C. firms report that their health care costs have outpaced their companies' growth; the annual rate of inflation in Washington ranges from 10 percent to 30 percent. The president of Company C terms health care his most rapidly rising uncontrolled cost. Firms in British Columbia have not faced large cost increases and are more concerned with the uniformity of their plans in comparison with other provincial plans.

As pressure mounts in Washington, and across the United States, for health system reform, the role of employers will be scrutinized. The managers of our case-study businesses, in both Washington and British Columbia, share the long-standing belief that employers have an important part to play in this aspect of employee welfare. The Washington firms say they could accept a universal health program, if it did not alter their role as plan purchasers and administrators; a federal program, financed by business, but administered by another organization, would be unacceptable. Only extraordinary government or economic pressures would convince these firms to contemplate a diminished role. Rather, these businesses are seeking ways to maintain their current commitments in the face of change.

Aaron Katz
Staff Director, Health Policy Analysis Program
University of Washington

REGION WATCH

Economic Developments in the Pacific Northwest

Last year, the Puget Sound had the distinction of being one of the fastest growing metropolitan areas in the nation. With all the glum talk of severe recession in other parts of the nation, has the region's economic boom run out of steam? According to the *Pacific Northwest Executive*'s midyear survey of senior executives and business owners, the next 12 months will bring slower growth to the Puget Sound's economy. The pace will not be as torrid as it was during 1989, but executives expect that the region's businesses will continue to outperform those in other parts of the country.

Puget Sound Business Conditions Survey

The survey—conducted in collaboration with the Greater Seattle Chamber of Commerce and the Seattle Economists Club—is designed to determine both current business performance over the last 12 months (July 1989 through June 1990) and future expectations for the next 12 months (July 1990 through June 1991). The sample frame consists of all private-sector establishments that employ 250 or more workers in King, Pierce, and Snohomish counties, plus a random selection of smaller firms. The questionnaire was sent to 581 businesses in late June. Usable responses were received from 230 (88 large and 142 small) firms, for an overall response rate of 40 percent. Collectively, these businesses employ 88,892 workers—about 9 percent of the private nonfarm work force in the three-county area. The distribution of respondents by size, location, and industry closely matches that of the sample frame (Table 1). Although Boeing participated in the survey, the company's responses are not included in the overall results. Given the employment weighting scheme we use, Boeing's 110,000 workers would simply outweigh those of all other survey participants.

According to survey returns, Puget Sound companies continue to perform well in terms of sales (Table 2). More than four-fifths of the respondents reported sales increases from 2.5 percent to more than 10 percent during the last 12 months. Wages, other costs, and prices charged by these firms for their goods and services continued to rise as well, resulting in increased profits after taxes (the median response was in the "higher" category). Profit growth, however, has fallen somewhat, compared with the results of our January survey. This slight decline in the rate of net after-tax profit increase has not resulted in any curtailment of current or planned business outlays for buildings and equipment. Nearly three-fifths of the businesses in our survey increased their capital expenditures in the latter half of 1989 and the first half of 1990. Employment additions, however, continue to slow; most respondents indicated that their employment figures had not changed. Small service-producing firms and large goods-producing companies appear to be the exceptions.

Table 1: Sample Characteristics of the Puget Sound Business Conditions Survey

	PERCENT OF SAMPLE FRAME	PERCENT OF RESPONDENTS
Large firms	39	38
Small firms	61	62
King County	69	78
Pierce County	22	16
Snohomish County	9	6
Services	68	68
Goods	32	32
TOTAL	581	230

Response rate equals 40%

Compared with our January survey results, the area's service-producing firms registered a distinctly higher rate of change, in terms of sales, nonwage costs, employment, capital expenditures, and prices charged in the last 12 months than did goods-producing firms. Both types of firms experienced similar increases in wage costs.

According to the executives and business owners we queried, their outlook for the remainder of 1990 and the first half of 1991 does not indicate the significant slowdown that forecasters are predicting for the region. In general, owners of service-producing firms are more optimistic than their goods-producing counterparts with respect to sales, employment additions, and net after-tax profits. Expected business outlays for plant and equipment are equally strong in both goods- and service-producing firms. The additional capital expenditures appear to be oriented to meet expected sales growth. Businesses, especially in the service sectors, also expect a sharp rise in wages and other costs, as well as prices charged for their products. Larger businesses generally expect to face higher costs—nonwage and wage—and higher prices charged for their goods and services than their smaller counterparts. Larger firms also expect to increase their capital outlays. Smaller firms, in turn, expect to add more new hires to their operations in the coming 12 months.

One major nonwage cost element that has increased rapidly is health care costs. Businesses, across both size categories and industrial sectors, provided rather sobering news: health care costs in the last 12 months have increased by more than 10

percent. Nor is cost containment relief in the cards; most firms expect their health care expenditures to rise by between 2.5 and 10 percent during the next 12 months.

The national outlook

With the economic expansion approaching its eighth anniversary in November, the going has been much more sluggish, and economists, reading the latest economic indicators, are wondering about the expansion's life expectancy. The latest gross national product figures from the U.S. Department of Commerce reveal an economy that has been in the midst of a slowdown since March 1989. With these revised numbers, annual GNP growth estimates from most economic prognosticators have been adjusted downward. The Office of Management and Budget recently reduced its estimate of GNP growth for 1990 from 2.9 percent to 2.2 percent. Our own forecast panel puts the current rate at 2 percent, with only marginal improvement for 1991 (Table 3).

In many sectors, the sluggishness is apparent. Consumer spending has declined due to reduced personal income and job growth. The Conference Board's Consumer Confidence Survey registered a significant decline in June, indicating that consumers are less optimistic about the immediate future. Foreign demand for goods and services has also slowed down, and sagging profits have curtailed business outlays for plant and equipment.

The homebuilding industry has been in a tailspin for much of the year. Housing starts fell for the fifth consecutive month and now stand at an annual rate of 1.18 million, the fewest new starts since 1982.

Is the Northwest cooling down?

With a sluggish national economy, increased attention has turned to the economic performance of specific regions and states. During much of the 1980s, New England, particularly Massachusetts, was the envy of the nation. New England, however, is now in the midst of an economic slump, and the Pacific Northwest has become the nation's darling. Through the first quarter of this year, the three-state region registered the nation's highest personal income growth, an annual rate of 9.1 percent. Nonfarm employment growth for the three states now stands at 4.6 percent, which is more than twice the rate for the nation. Unemployment is also low; surprisingly, the region's seasonally adjusted unemployment rate in May was lower than that of the nation.

Although our business conditions survey points to a strong Puget Sound economy in the next year, there are dark clouds beginning to form on the region's economic horizon. Our panel, with the exception of Idaho members, does not forecast substantial growth in employment for the remainder of the year and for 1991. The reasons for the change are essentially the same as those factors responsible for the region's boom. Boeing, the region's largest employer, is no longer adding workers at the same pace. And the Northwest's enormous lumber and wood products sector now anticipates significant supply shortages and declining demand in the coming months.

Table 2: Survey Results, July 1990

weighted percent of 230 respondents

	MUCH LOWER <-10%	LOWER -10% TO -2.5%	NO CHANGE -2.5% TO 2.5%	HIGHER 2.5% TO 10%	MUCH HIGHER >10%
SALES					
Last 12 months	1	3	8	55	33
Next 12 months	1	3	19	62	15
PRICES					
Last 12 months	0	5	44	48	3
Next 12 months	0	2	30	67	1
COSTS					
Last 12 months	0	1	16	77	6
Next 12 months	0	1	17	78	4
NET AFTER TAX PROFIT					
Last 12 months	3	5	39	32	21
Next 12 months	3	7	39	40	11
WAGES					
Last 12 months	0	0	11	84	5
Next 12 months	0	0	4	93	3
INVENTORIES					
Last 12 months	1	3	59	28	9
Next 12 months	1	10	52	34	3
CAPITAL EXPENDITURES					
Last 12 months	2	1	35	41	21
Next 12 months	6	2	26	41	25
EMPLOYMENT					
Last 12 months	3	7	41	40	9
Next 12 months	3	3	63	26	5

Table 3: Panel Forecasts

median annual percent changes

	REAL GROSS NATIONAL PRODUCT	IMPLICIT PRICE DEFLATOR
1989 actual	3.0	4.1
1990	2.0	4.2
1991	2.4	4.0

	NOMINAL PERSONAL INCOME	NON-AGRICULTURAL EMPLOYMENT	MANUFACTURING EMPLOYMENT
WASHINGTON			
1989 actual	9.7	5.3	5.4
1990	9.1	4.6	1.7
1991	6.7	2.1	0.0
OREGON			
1989 actual	8.1	4.4	4.2
1990	7.5	3.0	0.5
1991	6.7	2.2	-0.5
IDAHO			
1989 actual	10.5	5.4	6.1
1990	8.7	5.2	4.3
1991	8.0	4.5	3.6

The Pacific Northwest's Pulp and Paper Industry: An Economic Bellwether

We are surrounded by paper products. Every day we pick up newspapers, books, telephone directories, and magazines; use printing and writing papers and open packages ranging from egg cartons and cereal boxes to cold remedies and lawn and garden products. We buy paper towels, sanitary tissues, and disposable diapers. In addition to the array of products that have become essential to our everyday lives, paper is used in a broad spectrum of industrial applications. The food processing industry is a major paper customer, and there are paper fibers in film, rayon, and part of the space shuttle's nose cone.

The per capita consumption of paper is a widely used barometer of economic advancement. As a country's gross national product grows, so too does its demand for paper. As a nation's literacy rate rises, its consumption of newspapers and books increases. Growth patterns in paper products such as newsprint and office and computer papers are closely related to industrial activity, while other products, disposable diapers, for example, are directly affected by changes in real personal income or demographic factors. The world's leading economy, the United States, is the world's largest consumer of paper and paperboard products; our per capita consumption is now approaching 700 pounds annually.

The United States is also the world's largest producer of paper, and its immense production volume reflects the size and wealth of the domestic market, and the relative abundance and low cost of raw materials and other crucial inputs. Although year-to-year fluctuations occur, the industry has been relatively free from the strong cyclical variations experienced by such primary industries as mining, metals, and wood products. In many ways, the pulp and paper industry has become a bellwether for the national economy (Figure 1).

Historically, the forest products sector has played a decisive role in determining the direction of the Pacific Northwest's economy. Although the region is a leading pulp and paper producer, that industry is less important to the Northwest than its immense lumber and wood products industry. Neverthless, while most of the attention has been fixed on the performance and future health of the region's solid woods sector, the Northwest's pulp and paper industry, with far less fanfare, exhibited robust growth during the 1980s.

The region's first new paper mill in 30 years opened in Usk, Washington in 1989, a new secondary-fiber plant is scheduled to begin operation in Halsey, Oregon in mid-1992, and many of the existing pulp and paper facilities have made substantial capital investments. A new decade provides a good vantage point for examining the past trends and future prospects of pulp and paper in the Pacific Northwest.

From Rags to Paper

Paper was invented in 105 A.D. by Ts'ai Lun, a member of the Chinese imperial court. Ts'ai soaked tree bark, rags, and other cellulose materials in water to soften them and then beat the softened material until the fibers separated and swelled. The fibers were then covered with enough water so that Ts'ai could spread them into a thin sheet, which he then transferred to a felt cloth and pressed. The resulting web, once dried in the sun, was paper.

The art of papermaking gradually diffused westward, reaching Arabia in the eighth century and Europe around 1150. The invention of printing presses that used movable type in the 15th century greatly expanded the use of paper, and by the 1700s papermaking had become a prominent European industry.

A mainstay of the U.S. economy since colonial times, papermaking can trace its origin to 1690, when the first paper mill began operations in Germantown, Pennsylvania. During its history, the paper industry has gone through a number of distinct phases, each characterized by process improvements. As technology and industrial organizations changed, so did the input requirements and the comparative advantages of the various producing regions in the country.

Paper mills were first located on rivers and streams near cities. These sites not only ensured an ample supply of the fresh water necessary for papermaking and power, but allowed easy access to the population centers that provided both the market for paper and the raw material source of that time, rags. In those early days, the demand was for newsprint, and many newspaper publishers owned paper mills to meet their local supply needs.

The increased demand for paper only accentuated the critical need for raw material, and the scarcity of fiber led papermakers on a search for new sources of cellulose. In the years that followed, the industry's regional shifts were caused by this continual pursuit for an abundant supply of cheap and suitable fibrous materials. During the early 1800s, straw was the papermaking material of choice, especially for wrapping paper and paperboard, and paper's preference for straw shifted the center of the industry from cities of the Northeast westward to the farming states of the Midwest.

By the latter half of the 19th century, wood was the most plentiful, least-cost fiber for papermaking, and the pulp and paper industry turned toward the nation's timber resource regions, most of which were already milling lumber. Since the ascendancy of wood fiber, pulp and paper mills have followed in the wake of a large and well-established lumber industry. This trend was first observed in the Northeast, then was repeated in the Lake States, the South, and the Pacific Northwest.

Wood is transformed into suitable fiber for paper by either mechanical or chemical means. The mechanical pulping process hits wood chips with high-pressure steam before they're fed into stone grinders that separate the fibers. The first paper mill on the West Coast to take advantage of this woodpulping process was built in 1883 on the Columbia River near Camus, Washington. The mill, financed by H. L. Pittock, the

founder of the *Oregonian*, and his associate, J. K. Gill, had a daily capacity of 6 tons of newsprint. (The new Usk mill, in comparison, has a daily capacity of 560 tons.)

Chemical processes for wood pulping, which use sulfite, sulfate, and soda formulas to separate wood fibers by dissolving the lignin (or glue) that holds them together in the tree, were invented during the late 1800s. The sulfite process made it possible to manufacture very soft paper (like tissues), printing and writing papers, and rayon, acetate, and cellophane. Sulfate (or kraft, which is German for strength) pulp is used to produce paper bags, cartons, and other products that require strong fibers.

By 1900 most of the paper made in the United States was newsprint, with lesser amounts of book and magazine papers, paper bags, and paperboard. The trees that were preferred for pulping were light colored firs, spruce, and hemlock. Although the Northwest had an abundant supply of Western hemlock and spruce, the expansion of its infant pulp and paper industry was stunted by the region's distance from Eastern markets. Production, therefore, was largely oriented toward meeting the regional demand for newsprint, and the better paper grades were imported from well-established producers in the East.

During the interwar years, the industry experienced spectacular growth, fostered by increased consumer demand, as well as significant product and process developments. The nation's pulp and paper production more than doubled, to 20.5 million tons, during the period. As transportation routes through the Panama Canal and via cross-country railroads improved, population and business activity on the West Coast increased. The lumber industry grew and the pulp and paper industry began a period of spectacular expansion in Washington and Oregon. Between 1919 and 1939, 22 new facilities were built, and in Washington alone pulp production jumped from 134,000 tons to 1.4 million tons a year. Although newsprint and packaging papers still dominated the Northwest's product portfolio, increased demand for paper grades made from sulfite pulp resulted in an ever-increasing quantity of rayon, cellophane, and white paper.

The "Golden Age of Packaging"

In 1935 the U.S. Senate issued the Hale Report, which documented the nation's growing dependence on imports for its pulp and paper needs and the dismal state of forest conservation. The report concluded that "expansion of the domestic pulp and paper industry to provide for national self-sufficiency would have to take place in the South and in the Pacific Northwest."

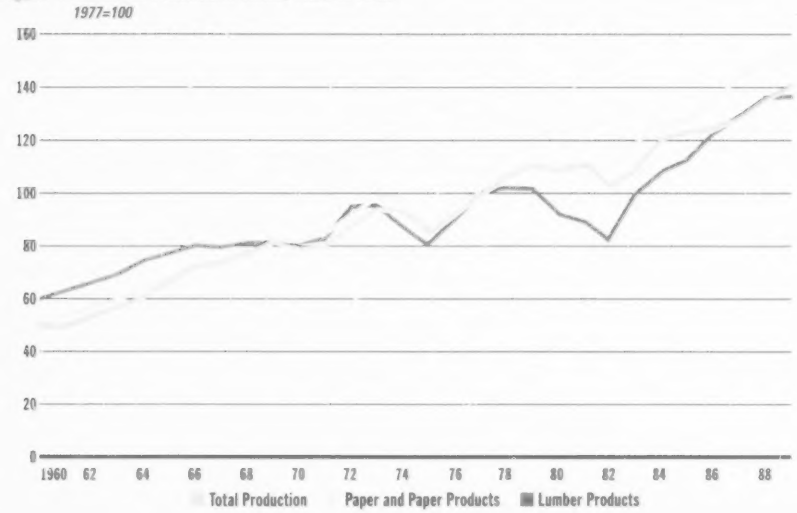
The Hale Report posed definite challenges for the industry and for government. The U.S. Forest Service, through its Forest Products Laboratory, launched an extensive research program to discover how current pulp and paper processes could be adapted to a multitude of unused tree species. The lab soon demonstrated that the kraft pulping process was applicable to a wide range of hardwoods, as well as such highly resinous softwoods as Southern pine and Douglas-fir. Further research outlined the technical and economic feasibility of bleaching kraft pulp to produce a wide variety of white papers. These research findings—and the development of a new semichemical pulping process for hardwood species—provided a tremendous impetus for industrial expansion and gradually shifted the core of the pulp and paper industry to the South and the Pacific Northwest.

The 1930s also marked the beginning of horizontal (product) integration within the pulp and paper industry. Large Western lumber corporations, such as Weyerhauser Timber Company, were looking for the paper product outlets that would allow them to harvest species such as hemlock, which was not especially prized for lumber. Weyerhaeuser constructed its first sulfite mills in Longview and Everett, and was one of the first firms to recognize the importance of vertical integration in forest products. The company became virtually self-sufficient in terms of its timber resources and its development of a chemical plant to produce its chlorine and caustic sodas for pulp and paper processing. Weyerhaeuser's integrated mill complex in Longview, for example, consisted of a sawmill, a plywood plant, both kraft and semimechanical pulp and paper mills, a chlorine and caustic soda operation, and a 30-megawatt cogeneration plant.

After World War II, pulp and paper production capacity increased dramatically, making the industry one of the nation's major growth sectors. Per capita paper consumption jumped from 244 pounds in 1939 to 411 pounds in 1955, the result of personal income growth and the rapid introduction of new paper products. The "golden age of packaging," which promoted the use of corrugated paper and paperboard (cardboard box) products for both consumer goods and transport, gave a tremendous boost to the demand for kraft pulp, and this demand was met by newly constructed kraft mills in the South and the Northwest. The Northwest's industry doubled in size from 1945 to 1955, when the annual production figures totaled 3.7 million tons of pulp and 2.9 million tons of paper and paperboard. The added kraft pulp production in the region's seven new plants hiked pulp and paper employment in the three states to more than

(continued on page 14)

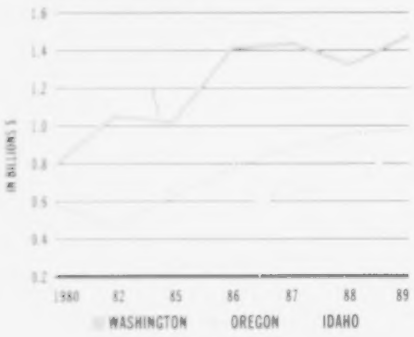
Figure 1: Industrial Production Index, 1960 to 1989



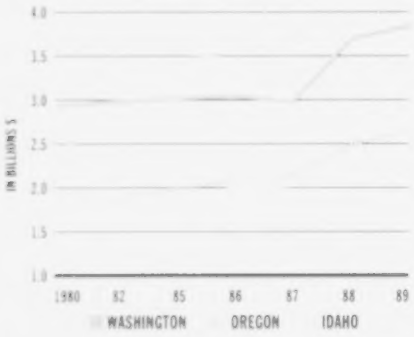
REGION WATCH

Pacific Northwest Agricultural Production Indicators[1]

FARM PERSONAL INCOME

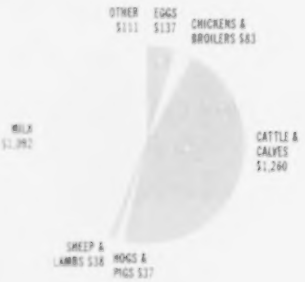


AGRICULTURAL PRODUCTION



SELECTED LIVESTOCK PRODUCTS, 1989

in millions $



FIELD CROPS, 1989

in millions $

NUMBER OF FARMS[2]

in thousands

YEAR	WA	OR	ID
1965	48.5	43.0	31.2
1970	41.0	34.5	28.5
1975	34.0	30.0	24.1
1980	38.0	35.0	24.4
1982	39.0	36.0	24.2
1985	38.0	37.0	24.6
1986	38.0	37.0	24.0
1987	38.0	37.0	23.0
1988	38.0	36.5	22.5
1989	38.0	37.0	22.3

TOTAL VALUE OF AGRICULTURAL PRODUCTION

in millions $

WA	OR	ID
703	495	556
892	614	723
1,994	1,179	1,442
2,948	1,934	2,322
2,981	1,885	2,180
3,031	1,975	2,189
3,062	2,026	2,004
2,979	2,144	2,042
3,719	2,501	2,431
3,864	2,666	2,775

FARM PERSONAL INCOME[3]

in millions $

WA	OR	ID
288	186	238
356	227	274
866	390	434
858	540	518
1,056	471	417
1,026	627	490
1,424	794	550
1,446	879	654
1,331	972	710
1,489	983	942

LIVESTOCK AND LIVESTOCK PRODUCTS

in millions $

YEAR	WA	OR	ID
1965	235	186	175
1970	306	254	269
1975	454	321	386
1980	811	565	759
1982	892	568	744
1985	885	594	755
1986	886	592	714
1987	924	632	775
1988	1,030	685	857
1989	1,130	727	901

CATTLE AND CALVES

in millions $

WA	OR	ID
76	92	100
113	141	168
132	155	231
311	312	483
335	280	400
288	265	413
294	254	389
326	289	453
401	335	521
402	331	527

MILK

in millions $

WA	OR	ID
87	47	52
125	59	73
213	92	127
383	158	240
440	184	290
478	189	294
469	188	280
475	187	273
496	187	294
559	205	328

FIELD CROPS[4]

in millions $

YEAR	WA	OR	ID
1965	295	154	365
1970	378	171	436
1975	1,077	533	1,017
1980	1,432	743	1,511
1982	1,356	678	1,366
1985	1,230	641	1,216
1986	1,055	576	1,219
1987	988	558	1,200
1988	1,384	689	1,609
1989	1,373	738	1,813

WHEAT

in thousands of bushels and millions $

	WA		OR		ID	
YEAR	Bushels	Value	Bushels	Value	Bushels	Value
1965	90,828	121	28,399	39	47,973	62
1970	92,800	137	26,717	39	41,582	58
1975	147,880	553	58,040	219	63,220	215
1980	160,220	638	77,400	308	96,030	351
1982	138,880	561	63,500	255	94,200	350
1985	128,250	437	56,040	189	72,030	229
1986	116,850	293	58,405	151	81,750	196
1987	114,285	322	52,920	151	85,500	221
1988	124,620	522	51,800	221	75,520	303
1989	110,610	448	53,835	229	91,420	355

SUGAR BEETS

in millions $

ID
37
48
73
152
118
128
150
166
177
NA

FRUIT AND NUT CROPS

in millions $

YEAR	WA	OR	ID
1965	98	57	8
1970	122	61	7
1975	209	76	13
1980	370	126	27
1982	389	142	30
1985	490	171	32
1986	683	180	28
1987	555	195	20
1988	724	216	26
1989	700	200	21

WASHINGTON APPLES

in millions $

1,000 TONS	VALUE
618	69
696	70
1,100	134
1,503	248
1,307	252
1,025	349
1,580	488
2,400	348
1,950	505
2,500	436

PEARS

in millions $

WA	OR
10	18
19	11
30	24
55	38
52	37
69	53
76	49
68	44
90	61
103	69

SWEET CHERRIES

in millions $

WA	OR
1	7
10	13
20	13
30	16
38	22
37	16
59	25
68	37
61	39
67	28

BERRIES

in millions $

WA	OR
NA	21
NA	22
13	19
17	31
29	48
27	51
24	66
31	64
32	64
34	58

GOVERNMENT[4] PAYMENTS
in millions $

YEAR	WA	OR	ID
1965	40	24	29
1970	58	23	48
1975	7	5	9
1980	9	6	8
1982	77	31	52
1985	155	71	122
1986	299	128	223
1987	292	127	234
1988	208	98	167
1989	131	60	99

AVERAGE NET INCOME[3,5] PER FARM
in $

WA	OR	ID
5,938	4,326	7,628
8,805	6,812	9,614
27,735	13,633	18,133
21,132	12,286	21,352
27,077	13,083	17,231
27,000	16,946	19,919
37,474	21,459	22,917
38,052	23,757	28,434
35,026	26,630	31,556
39,184	26,568	42,242

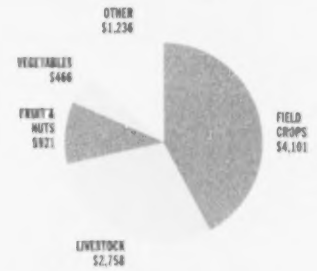
FARM ASSETS[4] Including households
in millions $

WA	OR	ID
NA	NA	NA
NA	NA	NA
7,763	6,438	7,286
15,660	13,355	13,917
16,928	14,793	15,353
17,342	12,978	12,740
15,842	12,241	11,469
15,376	12,140	11,753
15,551	12,153	11,866
NA	NA	NA

RATIO OF[3] PRICES RECEIVED TO PRICES PAID
US 1977 = 100

115
109
113
97
85
79
77
79
82
84

AGRICULTURAL PRODUCTION, 1989
in millions $



AVERAGE VALUE OF FARM LAND AND BUILDINGS
price per acre

YEAR	WA	OR	ID
1965	NA	NA	NA
1970	NA	NA	NA
1975	NA	NA	NA
1980	736	587	689
1982	922	705	839
1985	923	579	749
1986	812	521	644
1987	723	479	567
1988	699	466	592
1989	727	466	621

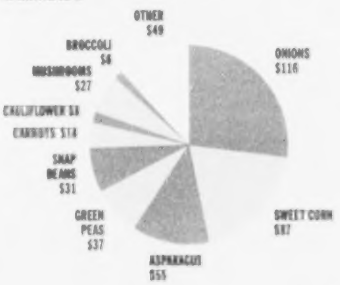
VEGETABLE CROPS
in millions $

WA	OR	ID
41	38	8
42	41	11
94	93	26
118	126	25
145	97	27
156	157	26
162	190	35
171	187	47
191	198	45
220	206	41

SELECTED VEGETABLES, 1989
in millions $

	WA	OR	ID
Onions	36	50	30
Sweet Corn	39	37	11
Asparagus	55	NA	NA
Green Peas	26	11	NA
Snap Beans	1	30	NA
Carrots	14	4	NA
Cauliflower	NA	8	NA
Mushrooms	8	20	NA
Broccoli	NA	6	NA
Other	41	40	0

VEGETABLE PRODUCTION, 1989
in millions $



POTATOES
in millions $

YEAR	WA	OR	ID
1965	29	18	119
1970	51	27	144
1975	152	78	294
1980	193	91	451
1982	198	82	321
1985	220	96	338
1986	266	97	388
1987	244	90	349
1988	285	100	554
1989	322	118	630

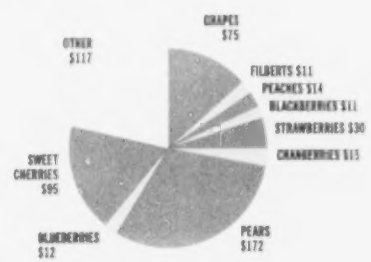
BARLEY
in millions $

WA	OR	ID
16	18	24
20	19	40
50	23	97
94	30	172
110	34	191
110	39	173
75	35	150
66	27	137
85	37	141
65	26	158

HOPS
in millions $

WA	OR	ID
16	3	3
17	4	3
31	8	5
86	17	8
93	26	16
66	17	15
58	18	13
49	16	11
54	18	4
58	19	5

SELECTED FRUIT AND NUT CROPS, 1989
WA and OR, in millions $



NURSERY AND GREENHOUSE PRODUCTS
in millions $

YEAR	WA	OR[7]
1965	NA	20
1970	NA	29
1975	NA	50
1980	90	133
1982	96	132
1985	98	153
1986	94	187
1987	125	212
1988	130	252
1989	140	274

OTHER FIELD CROPS, 1989
in millions $

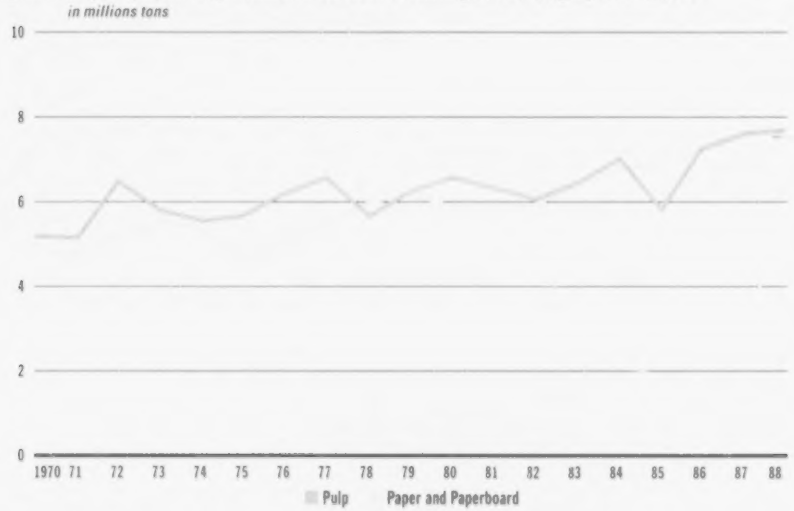
	WA	OR[8]	ID
Hay	253	244	325
Corn (Grain)	44	10	18
Corn (Silage)	25	NA	NA
Seed and Grass	NA	230	NA
Mint	30	49	13
Dry Beans	23	NA	94
Oats	4	10	6
Dry Peas	20	NA	11
Lentils	12	NA	9

SELECTED FRUIT AND NUT CROPS, 1989
in millions $

	WA	OR
Apricots	2	NA
Grapes	69	6
Strawberries	5	25
Raspberries	NA	15
Peaches	11	3
Blackberries	0	11
Filberts	0	11
Cranberries	7	8
Prunes	2	2
Blueberries	4	8

NOTES:
1. Unless otherwise noted, figures are those of the Crop and Livestock Reporting Services of Washington, Oregon, and Idaho. We thank the personnel of these offices for their efforts to provide us with data. Readers should be aware that some numbers are subject to revision. A "0" means that the dollar amount is less than one-half million.
2. In 1975 the definition of a farm was changed to include places with agricultural sales of $1,000 or more.
3. Bureau of Economic Analysis, U.S. Department of Commerce.
4. U.S. Department of Agriculture.
5. Revised to include all farm income and farms.
6. The total value of Idaho's field crops in 1989 is estimated by assuming that the value of beet production in 1988 is $177 million.
7. Department of Agriculture and Resource Economics, Oregon State University. Figures prior to 1980 do not include the value of bulbs, turf, and miscellaneous specialty products.
8. The value for mint is given for mint oil, not fresh mint, in Oregon.

Figure 2: Pulp, Paper, and Paperboard Production in Washington and Oregon, 1970 to 1988



(continued from page 11)

18,000 workers by 1955.

During the 1950s, pulp plants discovered that they could use sawmill residues (sawdust, edgings, chips) and significantly lower their raw materials costs. This ample stock of waste material from the solid woods sector meant that, for the first time, pulp companies no longer needed to own sufficient timberlands to meet their own supply needs, and further strengthened the economic linkage (and the geographical proximity) between the two industries. The availability of waste chips for pulping also prompted companies such as Potlatch, Boise-Cascade, and Willamette to integrate their operations.

Since the 1960s, pulp and paper production has grown at a healthy pace of 5 percent per year. Despite periods of wide production fluctuations, especially during the mid-1970s and the stagnant period from 1980 to 1982, the industry's cumulative capacity increase has been steady. The last two decades have also been characterized by increases in international trade, a heightened sense of concern for the environment, and the increased instability in paper commodity prices and costs. More than a quarter of the world's output of paper and paperboard products is now traded internationally. Although a major share of world trade is intraregional in nature and is dominated by the self-sufficient markets of North America, Western Europe, and Japan, trade patterns are blurring as national producers in Asia and South America emerge.

The price-cost environment changed dramatically in the 1970s, when markets grew tight and costs—particularly for energy and wood—escalated sharply. As capital costs soared and companies diverted their spending to energy conservation and environmental protection projects, capacity expansion slowed. Despite the industry's concentrated structure (only a few dominant firms were capable of price setting), market prices varied and discounting was widespread. Exchange rate fluctuations also influenced pulp and paper prices, adding risks to planned investments and destabilizing international trade flows.

The Boom Years

By the beginning of the 1980s, the prospects for paper were not bright. The industry's strong performance in 1979 was followed by the recession of 1981-82, two poor years in which the industry performed more sluggishly than the U.S. economy as a whole. Increased foreign competition and a strong dollar further compounded the industry's woes, as did competition from other materials, such as plastics, and from nonprint media, such as electronics. Market analysts began talking about the paperless office, mature markets, and saturation. The nation's sustained economic growth in the past eight years has eclipsed such arguments, however, and the paper industry at the close of the 1980s was riding the crest of a boom, with record production and operating rates, substantial growth in prices, rapid growth in capital expenditures, and strong corporate earnings.

The industry's record production levels were the result of increased economic activity from all major sectors, although the printing and publishing, distribution and shipping, and producer and personal services sectors displayed the strongest growth increases. Record amounts of paper and paperboard were needed to fill the demand for everything from newspaper inserts and computer paper to disposable diapers. The dramatic spurt in advertising, for instance, resulted in increased demand for paper by the printing and publishing sector. The anticipated competition from computers and other office equipment has actually stimulated consumption instead of depressing the use of paper. David Clark, the executive director of the European Paper Institute, recently quipped that the proliferation of personal computers and facsimile machines indicates that "perhaps we have gone from the paperless office to the officeless paper."

With an abundant raw material base, the Northwest's industry now supplies pulp and paper products from coarse linerboard to fine tissues and specialty papers for both domestic and world markets. Oregon and Washington contain the largest concentration of primary pulp and paper mills outside the South, and in 1988 the two states produced 8.2 million tons of pulp, which is approximately 13 percent of the nation's total. Production levels within the region's pulp mills have increased steadily since 1970, averaging nearly 3 percent in annual growth. The Northwest's paper and paperboard production totaled 7.6 million tons in 1988 and that rate of increase has grown faster than the annual average for the nation (Figure 2).

Pulp and paper is also becoming an increasingly important component of the region's forest economy. Between 1977 and 1986, the industry's share of the Northwest's total value-added for wood-based industries increased from 24 percent to 34 percent. In Washington, the amount of 1986 value-added in pulp and paper exceeded that of lumber and wood products.

But the dramatic increases in production have not translated into substantial employment growth. During the 1980s, the pulp and paper work force remained relatively constant, at 29,400 employees. The industry increased its productivity levels by

substituting capital (plant and equipment investments average between $150 million and $300 million annually) for labor. Although the industry has not been a significant job creator, pulp and paper employees are the highest paid industrial workers in the region; average wage rates increased by 6.6 percent per year in real terms during the 1980s, and the average worker now earns an annual salary of $38,000.

The Structure of the Pulp and Paper Industry

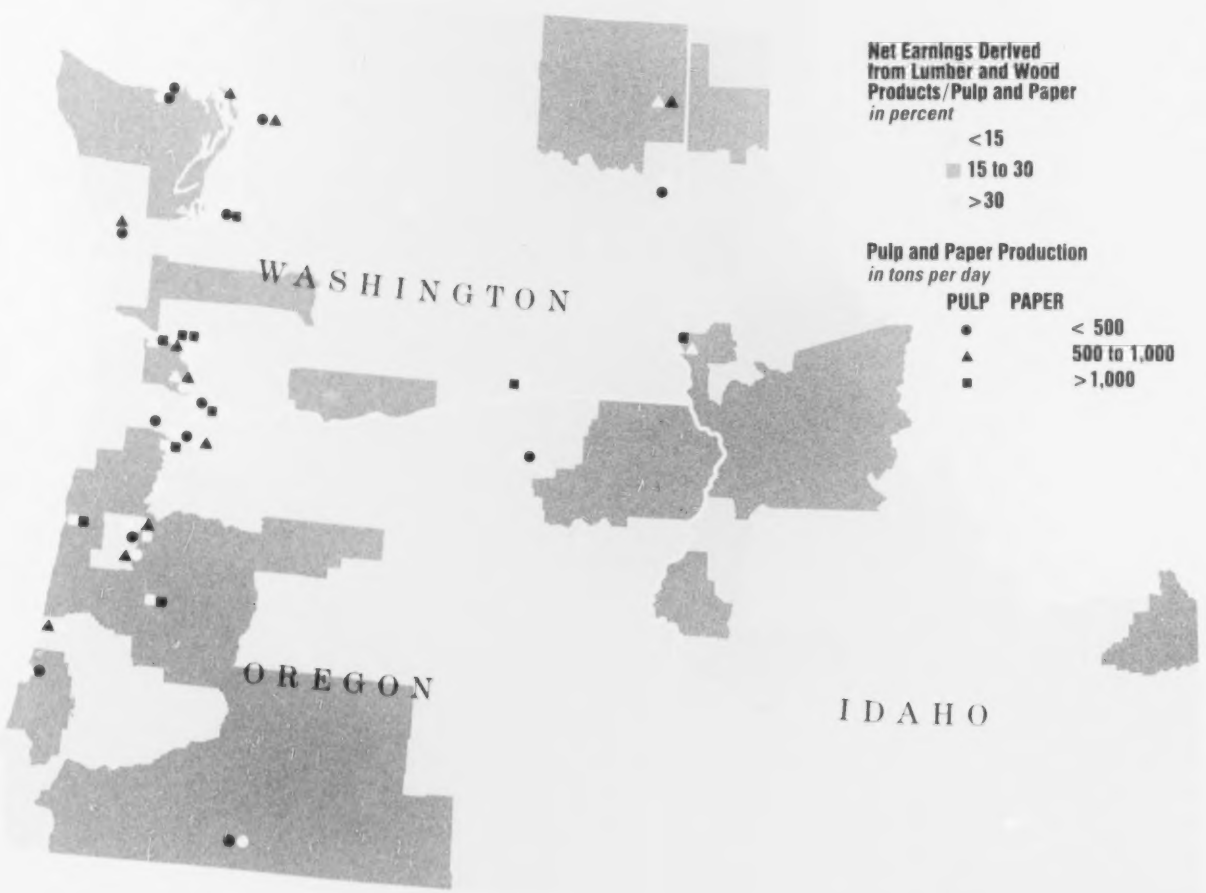
The paper and allied products industry includes mills that produce wood pulp, paper, and paperboard, or convert paper and paperboard into thousands of finished products. This industrial sector contains more than 6,300 establishments that employ nearly 695,000 workers. The total value-added of the sector is $50 billion, nearly twice that of the lumber and wood products sector.

Mills that only produce pulp (called market pulp) are relatively uncommon; because significant efficiencies are achieved through the integration of pulp and paper activities, only 39 nonintegrated pulp mills remain in operation in the United States (and five of them are located in Oregon and Washington). Of the nation's 487 mills, 162 produce both pulp and paper or paperboard at the same site. Although some firms have several pulp mills at a site, each plant produces a different pulp, which varies according to the particular process and mix of wood.

Resource-oriented pulp and paper production is crucial to the economic life of many communities in the Northwest. Towns such as St. Helens and Usk owe their economic existence to the industry, and even larger communities such as Lewiston, Longview, Port Angeles, and Springfield count pulp and paper as a key component of their export base (Figure 3).

The pulp and paper industry has exceptionally high capital requirements for plant and equipment; mills employ over seven times more assets per employee than the average for manufacturing as a whole. Capital investment in pulp and paper currently ranges from $500,000 to $1 million per in-

Figure 3: The Pulp and Paper Industry in the Pacific Northwest



stalled ton of daily capacity, depending on the mill's design and whether the investment is an addition to an existing mill or a new facility. A mill that wants to achieve a daily production level of 500 tons would spend between $250 million and $500 million on the equipment alone. The scale of equipment, the complexity of operations, and the high cost of downtime requires that pulp and paper mills run around the clock, 360 days a year to operate profitably. In 1989 the paper industry invested a total of $15.7 billion in capital expenditures, the largest annual gain (35 percent) of any manufacturing industry. In the Pacific Northwest, capital expenditures totaled $233 million in 1987; $19 million, or 8 percent, was allocated for environmental improvements.

Investments to protect the environment—to satisfy state and federal water standards, and air quality and solid waste requirements—have further increased the industry's capital outlays, without adding to papermaking capacity. Environmental protection equipment is now an integral part of each mill and adds another 10 percent to 15 percent to capital costs.

Rising capital costs explain, in part, the increasing concentration of the industry and the mill owners' tendency to modernize or expand the capacity of existing plants in lieu of constructing new ones. Pulp and paper companies also expand by acquiring other mills and by merging their activities with those of a competitor. One executive explained that "a new integrated pulp and paper facility would cost about $1 billion. But even if we wanted to spend that amount, there are basically no sites available for new facilities."

Pulp and paper mills are large and getting larger all the time. In 1960 the average mill had about 45,000 tons of annual capacity; by 1989 mill capacity had increased to 180,000 tons. The capital requirements and unusually large economies of scale that are now common in U.S. mills constitute a genuine entrance barrier to the industry.

Given such characteristics, the paper industry's operating rates are critical to profitability. The cyclical nature of the industry is more evident in its profit statements than in its production records. An operating rate below 90 percent signals a buyer's market, and customers are offered price cuts and discounts simply to keep the machines running. When rates increase above 95 percent, spot shortages and tight supplies begin to occur and prices rise accordingly.

Economics of Input

For highly capital-intensive commodity producers, like primary pulp and paper manufacturers, the relative costs of doing business are critical in the assessment of individual firm and regional performance. Beyond the industry's high fixed costs are its variable costs—materials, capital, labor, energy, and transportation—which account for 70 percent to 80 percent of the total. Variable costs are the principal competitive factor in the pulp and paper industry and as such play a key role in determining the location and nature of new capacity. In recent years, the industry's sensitivity to variable costs has led to a significant boom in the South; according to the American Paper Institute, more than 50 percent of all planned capacity expansions and modernization projects during the 1990s will occur there. In general, production costs in the Northwest are higher than in the South.

The most significant input costs faced by producers include the following.

►**Raw Materials.** The major expense in pulp and paper manufacturing is the wood fiber. More than 75 percent of the fiber going into Northwest mills is wood residue and cull logs supplied by regional lumber mills. Industry officials worry about how the federal government's recent decision to protect the spotted owl's habitat will affect the availability of wood chips. Even though the lumber industry's transition from old-growth to secondary growth trees yields more chips per unit of lumber, a number of pulp mills in Western Oregon and Washington may have to draw upon available residue stocks from mills on the east side of the Cascades, which have traditionally produced surplus chips. If the lumber industry suffers a downturn and the export demand for chips continues to increase, competition will escalate.

Although another potential source of fiber is recycled paper, it represents only a small percentage of the overall supply. Clearly, the industry is responding to consumer demand for more paper with recycled content, and recent patterns illustrate that the amount of waste paper used by mills will continue to grow. Because paper products constitute the largest component in landfills, the paper industry, according to Ron Cavaney, the president of the American Paper Institute, "has made a commitment to recover 40 percent [or 40 million tons] of all paper consumed in the United States by 1995." Currently, the industry collects and reprocesses about 25 million tons of waste paper each year.

Water, another major ingredient in the manufacture of paper, doesn't represent a significant cost, but its availability can be a limiting factor in current production, as well as future expansion. During the 1988 drought, some paper producers in the Northwest were forced to curtail production when their water supply dropped. With technological modifications, mills can recycle spent water up to seven times, and less than 10,000 gallons are now needed to produce 1 ton of pulp, compared with 57,000 gallons per ton in 1960.

Progressively strict federal and state clean water standards have forced the industry to significantly increase its capital expenditures for pollution abatement. The industry associations argue that the stringent dioxine emission regulations imposed on Northwest producers will only increase costs, making it that much more difficult to compete. Llewellyn Matthews, the executive director of the Northwest Pulp and Paper Association, contends that dioxine levels are pushing the limits of available technology, and "further reductions would require enormous capital investments in unproven technologies [that offer] uncertain results."

The pulp and paper industry is the nation's sixth largest industrial user of chemicals; each ton of paper or paperboard requires a quarter ton of organic (clays and minerals) and inorganic substances. Chemical costs total between 5 percent and 10 percent of production expenses. Most of the inorganic chemicals used in the bleaching process are supplied by the Northwest's chlorine and caustic soda plants.

►**Energy.** The paper industry is one of the top five energy users in the nation. The Northwest's comparative advantage in electricity costs has eroded as a result of Bonneville's rate increases since 1979. The price of electricity also affects the cost of chemicals. Chlorine and caustic soda are produced through a highly energy-intensive electrolytic process.

Higher energy costs have convinced the industry to control and reduce its energy usage and to increase its cogeneration capabilities. Since the late 1970s, Northwest mills have led the industry in energy efficiency improvements, and their successes have resulted in a 21 percent reduction in energy usage.

► **Labor.** On average, labor is the second largest cost component for the pulp and paper industry. The industry's labor force, both regionally and nationally, is stable and highly unionized. Although lower labor costs in the South are often credited for the migration of the lumber industry to that region, the wages of pulp and paper workers in both areas are comparable.

Vulnerable in the Future?

The challenges that face pulp and paper in the 1990s include the industry's competitiveness within the global economy, dramatic increases in input costs, shifting markets for output, the demands to incorporate more recycled fiber, concerns about product quality, and its environmental "friendliness." Forecasts for the next few years portend a reversal of the paper industry's heightened fortunes. According to industry analysts, demand growth will lag behind new supply, leading to lower operating rates, falling prices, and squeezed profit margins. Sherman Chao, a pulp and paper market analyst for Solomon Brothers, recently predicted that "due to substantial expansion during the last few years, the industry will be vulnerable, especially for the lower value commodities of market pulp and newsprint."

The long-term prosperity of the Northwest's pulp and paper industry hinges on the pace of national economic growth and the international rate of paper consumption. Continued prosperity within Pacific Rim countries, for example, provides increased export opportunities for regional producers. Products that appear to hold the greatest potential for future demand growth are the higher value-added printing and writing papers, coated lightweight paper for magazines, computer paper, and packaging materials.

In the face of increasing global pressures, a number of producers are voicing concern about the deterioration of the region's comparative advantages. Wood chip prices, environmental compliance costs, and electricity rates, they say, may prove to significantly limit their ability to compete as low-cost manufacturers of pulp and paper. As in times past, Northwest producers will meet these challenges by further modernizing existing facilities, increasing R&D spending for product and process development, and more aggressively marketing new and existing products.

The Dollar and Manufacturing in the Pacific Northwest

Trade has played a major role in shaping the international competitiveness of U.S. manufacturing. In the past decade, U.S. manufacturers have lost significant market share both at home and abroad. Declining levels of competitiveness, especially during the period from 1980 to 1986, contributed to record deficits, a drop in manufacturing employment, and stagnant real wage growth for manufacturing employees. The prospect of a long-term deterioration in the nation's manufacturing competitiveness has fostered new debate on the "deindustrialization" of America.

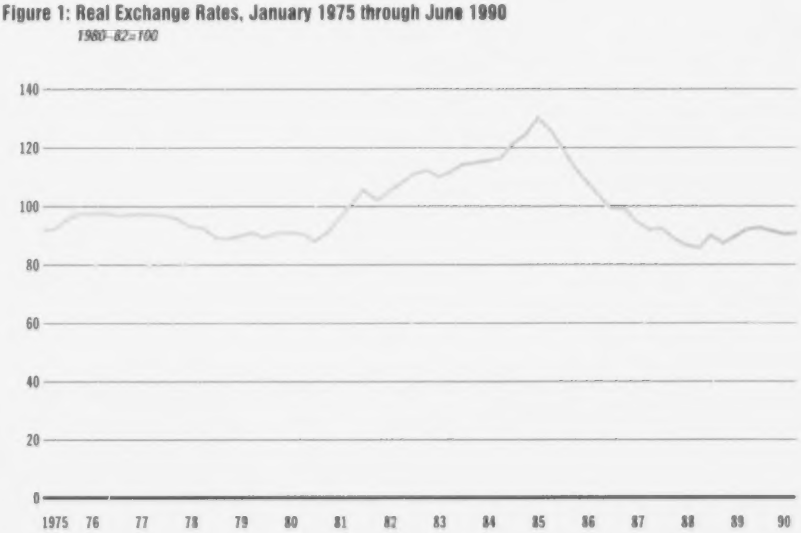
In recent years, however, U.S. manufacturing has clearly become more competitive, and there's been a resurgence in exports. Talk about *de*industrialization has given way to comments on *re*industrialization and the rebirth of U.S. manufacturing.

Although several factors are responsible for this turnaround—worldwide economic growth, technology and research and development expenditures, and increased investment—a prime contributor in both the decline and the recovery of manufacturing has been the foreign exchange value of the dollar. In this article, we examine the link between U.S. manufacturing and exchange rate movements, looking at the sensitivity of industry production to changes in exchange rates and the implications for the Pacific Northwest. What was, for instance, the volatile dollar's role in the region's manufacturing employment during the 1980s?

Exchange Rate Volatility and U.S. Manufacturing

During the 1980s, the inexorable rise in the value of the U.S. dollar and its subse-

Figure 1: Real Exchange Rates, January 1975 through June 1990



SOURCE: Morgan Guaranty Trust Company. (Rates are based on real trade-weighted dollar against 15 currencies.)

quent decline were both startling and significant. Since the 1972 collapse of the Bretton Woods system of fixed exchange rates, swings in real exchange rates of more than 30 percent have become common. Movements in relative prices of this magnitude lead to sharp changes in exports and imports, disrupting normal trading relationships and creating shifts in employment and output in many nations' export- and import-competing sectors.

In the spring of 1981, the U.S. dollar began a four-year period of real appreciation, peaking at a point that was 40 percent higher than previous levels by the spring of 1985 (Figure 1). The dollar's "misalignment," according to the explanations of economists, was the result of the tight anti-inflationary monetary policies instituted in early 1980s, the expansionary fiscal policies of the Reagan administration, and shifts in investor sentiment toward dollar securities. The dollar reversed its course in mid-1985 and depreciated by 30 percent (on a real trade-weighted basis) in the next year and a half. Since 1987, the real value of the dollar has remained low relative to other major currencies.

In general, a dollar appreciation in real terms reduces the competitiveness of U.S. goods and services that are directly or indirectly substitutable for foreign output. Exchange rate movements alter the relative prices of U.S. products at home and abroad, as well as the relative prices of foreign and domestic traded goods. With a rising real exchange rate, the price of U.S. imports falls (relative to the price of competitive products made in the United States), and the foreign-currency price of U.S. exports rises (relative to the price of their foreign counterparts). As a result, the production of traded goods will shift from the United States to foreign countries. In the absence of trade barriers, the shift will be the greatest for those goods in which the United States has little comparative advantage (unskilled, labor-intensive goods, for example), whereas those products that enjoy the greatest comparative advantage (high-tech goods) will be least affected.

Tradable goods bear the competitive brunt of a strong dollar, while nontradables (such as food, tobacco, printing, leather, textiles, and stone, glass, and clay) are relatively immune. In theory, a dollar appreciation is actually beneficial for nontradable goods producers, because they receive comparatively higher prices and are able to use the labor and other resources that are not needed in tradable goods production. An appreciation of the dollar should prompt a shift from tradable to nontradable goods production, as well as a shift from unskilled to skilled work in manufacturing. In reality, some U.S. firms, in response to dollar appreciation, elected to move their production facilities overseas. Those lost jobs may never return to the United States now that the real value of the dollar has declined relative to foreign currencies.

Recent research by the Federal Reserve Bank of Boston reveals that, as a result of the dollar's sharp appreciation in real value from 1980 to 1985, structural change in manufacturing was "two-tiered." Export-oriented industries (transportation equipment, instruments, and machinery) and import-oriented sectors (apparel, primary metals, and lumber) that had faced stiff competition began to experience slower growth or even decline; those sectors of the economy that had a low trade exposure and were less sensitive to changes in the value of the dollar (food, tobacco, textiles, and printing) experienced stronger growth.

These sensitivities in exchange rate movements can be readily seen in the trade balance of individual industries. Those industries that were most exposed to international competition reported declining export shares between 1980 and 1985 (Table 1).

As the value of the dollar appreciated between 1980 and 1985, the overall U.S. merchandise trade deficit also rose, climbing from $24.4 billion to $132.5 billion. This rise was concentrated in manufacturing, where an initial trade surplus of $20.7 billion fell to a $104.3 billion deficit. In general, durable goods manufacturing—particularly transportation equipment, nonelectric machinery, and electrical equipment—was influenced more by the dollar's rise than the production of nondurable goods. Five in-

Table 1: U.S. Trade Surplus in Selected Industries
in billions of dollars

INDUSTRY	1980	1985	CHANGE 1980–85	1989	CHANGE 1985–89
AGRICULTURE	19.6	7.3	-12.3	12.6	5.3
MINING	-62.4	-32.6	29.8	-34.5	-1.9
MANUFACTURING	20.7	-104.3	-125.0	-89.1	15.2
Durable Goods	19.8	-75.6	-95.4	-88.7	-13.1
Lumber and Wood Products	0.1	-2.4	-2.5	0.2	2.6
Furniture and Fixtures	-0.6	-2.7	-2.1	-4.2	-1.5
Stone, Clay, and Glass	-0.3	-2.5	-2.2	-3.3	-0.8
Primary Metal Products	-6.5	-15.7	-9.2	-14.4	1.3
Fabricated Metal Products	2.5	-2.0	-4.5	-2.3	-0.3
Machinery, Except Electrial	23.9	6.2	-17.7	2.6	-3.6
Electrical Equipment	0.9	-19.0	-19.9	-23.4	-4.4
Transportation Equipment	0.7	-27.9	-27.2	-31.4	-3.5
Instruments	3.0	-0.2	-3.2	2.7	2.9
Miscellaneous Manufacturing	-2.5	-9.4	-6.9	-15.2	-5.8
Nondurable Goods	-1.9	-34.6	-32.7	-27.9	6.7
Food and Kindred Products	1.7	-2.5	-4.2	1.5	4.0
Tobacco Manufactures	1.0	1.2	0.2	3.5	2.3
Textile Mill Products	0.5	-2.2	-2.7	-4.5	-2.3
Apparel Products	-4.9	-14.7	-9.8	-20.5	-5.8
Paper and Allied Products	-0.7	-3.6	-2.9	-3.5	0.1
Chemical Products	14.1	9.0	-5.1	15.7	6.7
Petroleum and Coal Products	-10.6	-12.6	-2.0	-6.7	5.9
Rubber and Plastic Products	-0.1	-2.0	-1.9	-4.7	-2.7
Leather Products	-2.9	-7.2	-4.3	-8.7	-1.5

NOTE: Table uses nominal trade data. Deficits are negative entries.
SOURCE: U.S. Department of Commerce

dustries—transportation equipment, nonelectric machinery, electrical equipment, apparel, and primary metal products—accounted for two-thirds of the swing in the manufacturing deficit. In fact, of the industries shown in Table 1, only tobacco recorded a greater surplus (or smaller deficit) during the period.

Such deficits translated into a substantial loss of U.S. manufacturing employment. Princeton economists William Branson and James Love recently estimated the employment impact of the dollar's appreciation as a loss of about 1 million jobs. Two-thirds of the estimated jobs lost were in four durable goods sectors: primary metals, fabricated metal products, nonelectrical machinery, and transportation equipment. Lumber and wood products, instruments, and stone, clay, and glass products also posted job losses totaling 122,000 employees. These losses weren't just confined to the durable goods sector. Despite their low trade exposure, even nondurable goods—particularly textiles, processed foods, and chemicals—showed a drop in employment.

The fall in the dollar's value from 1985 to 1989 was accompanied by a decline in the overall trade deficit, as well as the manufacturing deficit, which decreased by $15.2 billion in the four years. Although the decline in the dollar stimulated foreign sales for U.S. products, only eight industries saw positive movements in their trade surplus, and this group included only one of the principal deficit-related industries, primary metals. Positive changes were also recorded in chemicals, food, tobacco, lumber, paper, petroleum, and instruments. For the other four leading deficit industries, the total trade deficit rose $17.3 billion. The reasons for this continued rise in imports can be explained by the purchasing decisions of U.S. manufacturers and consumers, pricing adjustments by foreign producers who wanted to maintain their market shares, and the difficulty that U.S. producers encountered when they tried to reenter those market segments that they had earlier abandoned.

Despite the rebound, U.S. export industries have had substantial difficulty regaining lost market share, causing many analysts to question the strength of the U.S. manufacturing turnaround. The Office of Technology Assessment provides a rather grim assessment in its recent report, *Making Things Better: Competing in Manufacturing*. The study pronounced that "American manufacturing has never been in more trouble than it is now."

Table 2: Employment Change in Washington and Oregon
per 10 percent change in the dollar's real exchange rate

SECTOR	PERCENT CHANGE
TOTAL EMPLOYMENT	-1.28
ALL MANUFACTURING	-1.68
Durable Manufacturing	-1.47
Transportation Equipment	-2.79
Lumber and Wood Products	-2.69
Fabricated Metal Products	-2.60
Nondurable Manufacturing	-0.71
NONMANUFACTURING	-1.23

The improved exchange rate conditions during the latter half of the decade led to increased production, which in turn stimulated improved employment conditions for most manufacturing sectors. A substantial share of these employment gains were concentrated in the export-oriented sectors of nonelectrical machinery, instruments, chemicals, and primary metals.

The Impact of Exchange Rates on Northwest Manufacturing

Exchange rate movements during the 1980s elicited a variety of production responses from U.S. industries. Industry mixes vary widely across regions of the country, since many sectors are concentrated according to their proximity to markets and required inputs. Given the variances in industry composition, the effects of exchange rate swings differ from region to region.

The U.S. Department of Commerce lists the Pacific Northwest as one of the most export-dependent regions in the nation. In 1986 more than 18 percent of the three-state region's manufacturing work force depended on foreign exports for their livelihood. Washington's economy is especially dependent on the foreign sales of airplanes, machines, electronics, instruments, forest products, and food.

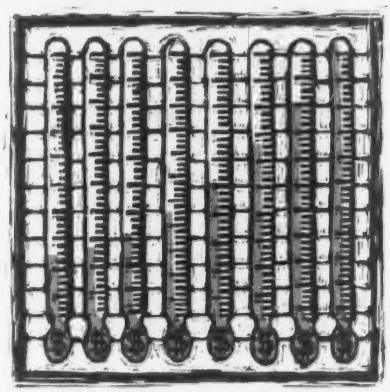
With such extraordinary dependence on export markets, how have the region's manufacturing sectors and employment levels been affected by exchange rate movements during the past decade? Despite a lack of data (particularly for state industrial production and international exports), *Pacific Northwest Executive* constructed a simple supply and demand model that suggests that the production of manufacturing goods (using employment as a proxy) is inversely related to the real exchange rate and positively related to real foreign income. Our findings indicate that vacillations in the real exchange rate (which were adjusted for shifts in relative goods prices between the United States and its major trading partners) have had an effect on manufacturing employment in Washington and Oregon (Table 2). Not surprisingly, durable goods employers were particularly vulnerable. On average, a 10 percent acceleration in the appreciation rate of the dollar resulted in a 1.5 percent loss in employment. Within the aerospace industry, employment in Washington fell by 3 percent every time the dollar rose 10 percent. Exchange rate swings, which tend to influence durable goods industries, have had little impact on the region's nondurable manufacturing sectors.

These results demonstrate that the fortunes of the Northwest economy are closely intertwined with the world economy. In fact, for some sectors, international fluctuations are a predominant factor in the Northwest manufacturing job picture. When the dollar's foreign exchange value is high, employment in many of the Northwest's manufacturing sectors falls, and vice versa. Job losses occurred when the dollar was high because the prices of Northwest-made exports appeared more expensive to potential foreign buyers. As a result, the regional export of manufactured goods fell, causing layoffs. Further layoffs occurred when Northwest manufacturers found that their domestic sales were dropping as well, because the appreciated dollar made the prices of imports more attractive.

The surge in overseas demand since 1986 has provided a substantial impetus for employment gains in Oregon and Washington factories. Improved exchange rates, coupled with growth in other industrial economies, have stimulated foreign sales levels for regional manufacturers.

While there is little that a state government or a region can do to offset an appreciating dollar, it is clear that the Northwest should continue to encourage the expansion of world trade. A continued low dollar, relative to other major currencies, would help increase the demand for Northwest products.

Health Care Strategies for Business



KRIS WILTSE

With health care costs rising at an annual rate of more than 10 percent, employers are searching for strategies to keep their health insurance expenses under control. And business is not alone. The federal government, which pays 44 percent of the health care bills in the Northwest (through Medicare and Medicaid), has taken several bold initiatives to limit its expenses. Although the Catastrophic Health Insurance Bill was deemed unacceptable by its constituents, the federal government did succeed in its plan to reimburse hospitals prospectively, instead of paying a patient's itemized bill for services. Other initiatives, such as government-mandated, employer-paid health insurance, are also being considered and will have a direct effect on business if adopted. As firms design health insurance packages and allocate company resources to cover health costs, choosing the most cost-effective strategy among the many options becomes an even more critical task. Employers rely on the recommendations of benefit consultants, imitate the plans of similar companies, or follow media hype about the latest great idea.

Restructuring Health Care Delivery

A popular notion claims that the way health care is financed and delivered to patients is inefficient and, therefore, restructuring that process will reduce costs. All of the current forms of reorganization—the health maintenance organization (HMO), the preferred provider organization (PPO), and the exclusive provider organization (EPO)—have one thing in common; following the federal government's lead, they include prospective (preset) reimbursements. An HMO differs from the traditional, fee-for-service form of delivery in that it charges an annual fee for each insured employee. Fees are based on the employee's expected use of health services, not on his or her actual use. Some HMOs, Blue Cross HealthPlus, for example, are strictly insurance companies; they contract with hospitals and doctors in the community to provide the actual care. Others, such as Group Health Cooperative, provide both insurance and health care services. Several studies, including the *Rand Health Insurance Study*, have indicated that HMOs are slightly more cost-effective than fee-for-service plans. HMOs that have their own health care facilities, in particular, admit patients to hospitals less frequently without jeopardizing their health status. At the same time, HMOs control a patient's access to services, so enrollees may wait longer for care and complain that they see too many different doctors during their visits.

One measure of an HMO's value from an employer's point of view is its ratio of insurance claims to premiums. If the ratio is approximately 90 percent (leaving 10 percent for administrative costs), employers are getting their money's worth. If a lower percentage continues for several years, employers may be paying too much for the claims that are generated; a higher percentage over time means that the insurance company may be at financial risk. Insurers such as Group Health Cooperative (with a 1987 ratio of 98.5) and Washington Physicians Service (104.3) will most likely have to raise their premiums or change their benefit packages. On the low end of the scale are Cigna Healthplan of Washington (73.2), Pacific Health (77.3), and Blue Cross/Blue Shield of Oregon (79.9).

The preferred provider organization (PPO) is similar to an insurance-based HMO. These plans do not restrict enrollees to specific doctors and hospitals, but PPOs cover a larger proportion of the "preferred" doctor or hospital's charges. By negotiating lower rates with specific doctors and hospitals, PPOs can realize a cost savings and, at the same time, offer health care providers increased market share and quick payment. In a recent survey by Foster Higgins, 74 percent of responding Northwest employers were satisfied with their PPO. While PPOs have been popular, there is conflicting evidence that they are actually cost-effective. Preferred providers may, in fact, be providing more services than necessary to bring their revenues up, and the administrative costs associated with contracting, monitoring, and paying claims may be eating up the cost savings.

If the combination of claims and administrative costs greatly exceeds the premiums an employer pays, the HMO or PPO will have to raise its premiums for the next contracting period or run the risk of becoming financially unstable. While it is true that insurers benefit from the return they receive from investing their funds, it's unlikely that those earnings can sustain extremely high administrative costs. The ratio of insurance claims and expenses to premiums usually lies between 85 and 120 percent. However, several insurers, including Eldermed of Washington (2,674 per-

BY JENIFER EHRETH

cent), Cigna Healthplan of Washington (868.7 percent), and HMO Washington (446.8 percent), fall significantly outside the normal range, which indicates that they have relatively high administrative expenses.

The exclusive provider organization (EPO) differs from the PPO in that it assigns each enrollee to a physician who acts as a gatekeeper in all nonemergency services. In theory, this physician will be frugal in her recommendations of health services, but a recent controlled evaluation, the *United Healthcare Case Study*, examined an EPO in the Northwest and failed to show any cost savings. EPOs have discovered that there is little data available on a specific physician's cost effectiveness and quality of care.

While restructuring the way health care is financed and delivered has not proven to be the panacea that early promoters predicted, the alternatives are no worse in terms of cost and quality of care than the traditional, fee-for-service structure. And HMOs, PPOs, and EPOs do offer businesses—and their employees—a range of choices.

Changing Benefit Packages

Tinkering with a health plan's benefits is another strategy that employers use to control costs. For example, by requiring a second opinion from another doctor before certain health services are allowed, providers gamble that the savings from reducing unnecessary care will be greater than the cost of paying a second physician. The problem with this strategy is that, while there is variation in the amount of care that is given to people with similar diseases, that variation is often geographically based. If a doctor feels that surgery is necessary for a bad back, chances are that other doctors in the same town will agree with him. The *Rand Health Insurance Study* also suggests that second opinions cost more than they save.

Another tactic that can be used to control costs is to decrease the amount that the insurer will pay for each service. If employees have to cover additional out-of-pocket expenses, according to this rationale, they will use less unnecessary care. This strategy works; when people have to pay more for health care, they use less of it. Although this benefit change lowers costs in the short-term, the long-term costs are

Insurance Options

PLAN NAME	ORGANIZATIONAL MODEL	START-UP DATE	NUMBER OF HOSPITALS	NUMBER OF PHYSICIANS	NUMBER OF COUNTIES	TOTAL ENROLLEES
Cigna Healthplan of Washington	HMO	1985	36	1,025	10	5,300
Foundation Health Plan	HMO	1985	60	1,673	24	15,935
Group Health Cooperative	HMO	1947	11	850	18	320,996
Group Health Northwest	HMO	1977	9	339	2	36,416
Health Plus	HMO	1981	37	2,304	29	46,269
HMO Washington	HMO	1986	17	1,400	7	1,554
Kaiser Permanente	HMO	1945	1	350	5	62,429
Pacific Health	HMO	1985	12	321	NA	NA
Alternative Choice (Whatcom)	PPO	1985	1	158	1	9,950
Chiropractic Service Bureau	PPO	1971		224	5	11,565
Community Choice Care (Cowlitz)	PPO	1985	2	106	2	10,000
Family Health Plan	PPO	1986	16	537	12	8,100
First Choice Health Network	PPO	1985	32	1,572	38	25,320
King County Medical Preferred Plan	PPO	1985	15	3,223	1	220,000
Lewis County Preferred Plan	PPO	1987	3	83	1	123
Network Health Plan, Inc.	EPO	1986	9	324	4	5,716
Network Management, Inc.	EPO	1981	2	956	10	26,371
The Preferred Plan (Pierce County)	PPO	1985	7	897	1	37,769
The Preferred Provider (Grays Harbor)	PPO	1986	1	74	2	500
Prudent Buyer Plan	PPO	1986	60	4,158	39	242,513
Sound Health Network	PPO	1986	27	937	11	12,669
Take Action PPO	PPO	1987	27	937	3	1,600
Travelers Preferred	PPO	1987	9	1,113	2	725
United Health Network	PPO	1986	7	64	3	3,500
United Northwest Services	PPO	1984	4	451	6	39,000

SOURCE: ***Managed Health Care Plans—A Directory of HMOs and PPOs Offering Health Plans in Washington State, 1987–1988*, Health Systems Resources.**

still unknown.

Finally, businesses can reduce discretionary health services or those of questionable value. Mental health coverage and heart transplants are services that are sometimes deleted from benefit packages. Initially, an employee's health care expenditures decrease as these services are excluded, but, again, the long-term effects have not been determined. Undiagnosed cancer or untreated diabetes could lead to higher costs in the long run. Hypertensive men, the elderly, and the poor are particularly sensitive to extreme cut-backs in health care benefits.

Good Health Can Be Catching

To reduce their health care costs and improve employee awareness, many businesses have taken a more active role in health promotion at the work site. Employers are paying for routine check-ups and for such targeted programs as smoking cessation and aerobics classes. They're trying to improve safety on the job and reduce their employees' exposure to harmful substances. If workers live healthier lives in smoke-free environments, employers believe, they will use fewer health services, take fewer sick days, and be more productive. It's true; if people are surrounded by co-workers who have healthy lifestyles, they tend to be healthier as well.

One of the problems with demonstrating a cost savings from routine check-ups or health promotion visits, however, is that the effects are subtle and generally require a long period of study to document the changes. So while we can't prove yet that work site health promotion programs are successful at reducing health care costs, we do have evidence to show that they contribute to lower absenteeism and higher employee morale, which can lead to lower turnover rates and a savings in personnel costs.

Certain health conditions are more amenable to target programs and changes in behavior than others. Smoking cessation, cholesterol reduction diets, and exercise classes have been successful. But employers who simply provide their workers with pamphlets about the dangers of dietary cholesterol won't see the same results as an employer who sets up a regular cholesterol screening program. And one-time classes are not as effective as ongoing monitoring.

The Public Policy Debate

Businesses have also taken a more active role in the debate over public health policies and health care cost containment. Coalitions of business representatives, such as the Health Care Purchasers Association in Washington State, and individual corporate managers are becoming more knowledgeable and vocal in the discussions on state and federal initiatives and policy formation. Business is now lobbying for its interests at the state and local levels.

The most important health care legislation implemented in the last few years is the federal government's prospective payment system, which is based on diagnosis related groups (DRGs). DRGs categorize patients according to their diagnoses and the costs usually associated with treating those problems. The government was attempting to shift the risk of higher costs to hospitals by paying them a set amount per patient, regardless of the hospital's actual costs. Hospitals, in turn, are changing the way they provide care: some are deciding to reduce the scope of their service, others are making capital decisions on the basis of DRG profitability, and some are looking for ways to pass Medicare losses on to private insurers.

The incentive is for hospitals to reduce their costs by discharging patients earlier, and, in general, fewer people are being admitted to hospitals for shorter stays. Nonetheless, personal health care expenditures have remained undaunted, increasing at a rate of more than 10 percent per year. And because of the DRG legislation, hospitals are going out of business, costs per admission are rising, and nonhospital costs—such as doctor visits and laboratory tests—are rising even faster.

The federal government is now considering the adoption of government-mandated, employer-paid health insurance. The Pepper Commission, a bipartisan Congressional committee, recommended the passage of a mandatory health insurance bill with long-term care entitlements. Massachusetts was the first state to pass such legislation and California is considering a similar measure. States with mandatory health insurance would require businesses to provide insurance benefits for all employees and their families. Small businesses, businesses with more competitive and volatile markets, and businesses with categories of employees that are not currently receiving benefits would feel the burden of mandatory insurance. Business costs, not surprisingly, are predicted to rise.

Another innovation is Washington State's Basic Health Plan, which offers insurance for low-income people who are not covered by employer-sponsored insurance, are ineligible for Medicaid or Medicare, and are willing to pay a modest premium. Although the effects of the plan on business and state health care costs are uncertain, supporters hope that the Basic Health Plan will relieve some of the fiscal strain on hospitals that are left with the unpaid bills of uninsured patients. If this occurs, hospitals will have less incentive to pass those costs on to private insurers.

Finally, the federal government is looking for ways to extend the DRG concept to nonhospital care, such as physician payment formulas. The proposed Resource Based Relative Value Scale (RBRVS), for example, would reimburse physicians on a per patient, rather than a fee-for-service, basis. The payment would be according to specific RBRVS categories, and the doctor's incentive to increase the number of procedures performed on a given patient, which is common with fee-for-service, would be taken away. Critics respond to this option by questioning whether physicians will reduce the number of necessary procedures for a patient's treatment below an acceptable level of quality or safety. In any event, a change in federal reimbursement policy will certainly influence private insurance.

"Competition" is the current buzzword in health care circles, but it's hard to tell what that means in an industry that, by its nature, doesn't have the characteristics of a competitive market. When people become patients, they lose their ability to be prudent, informed consumers. Patients lack the information to assess the technical aspects of quality, they seldom make repeat purchases, and they may not have the ability to shop around. Looking for answers in the arena of competition is not necessarily inappropriate; it's just not going to be an easy task. Business, by taking a more active, involved role, can provide the industry with the interpretation and the perspectives that might make cost-effective health care possible.

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RURAL TRANSPORTATION

The Dilemma of Abandonment

By Kenneth L. Casavant

It really isn't necessary to remind ourselves of the obvious importance of transportation. In the United States, overland, waterborne, and air transportation have, in fact, been the stimulus and guide for economic development, growth, and stability. The same holds true within Washington and the Pacific Northwest. The fortunate part is that Pacific Northwesterners have had a complete transportation system—that is, different modes of transportation competing for the opportunity to move people and products—which has helped generate the economic growth we have witnessed.

The intense competition among modes of transportation has stabilized and lowered rates and led to innovations on the part of the individual rivals. As late as 1986, for example, we were moving grain by rail from Whitman County to Portland and Seattle at rates that were at the same nominal level as they were in 1932. Now, this was not because of the benevolence of the railroads, but rather the result of competition between the railroads and the truck-barge mode. Yes, efficiency was important, but it was competition that led to much of the efficiency.

In the past decade, however, significant structural and regulatory changes have occurred that are now affecting this efficiency, and those shifts—and how they relate to the agricultural and resource industries of the Pacific Northwest—are the thrust of this article. We know that our roads are deteriorating and that railroads are dropping unprofitable branch lines, which means that the bill for transportation and marketing paid by resource industries is increasing. The question is, how can we minimize that increase? Is it possible, for example, to determine the future impacts of rail line abandonment? If so, how should policymakers weigh that information? How can we search for long-term solutions to transportation concerns when we can't easily predict future needs?

Is Bigger Better?

"Primitive Road" signs, now seen all too often on rural roads, convey two messages. The obvious one is that drivers should proceed cautiously, at their own risk; the more critical message is that public agencies, such as county commissions, can no longer maintain the road system that local producers rely on.

Everything in agriculture has gotten bigger: commodities are moved in larger units, and farms are bigger with fewer people living along rural roads. At times, the number of families along a given road becomes so small that government officials can't justify maintenance costs at public expense. In some cases, roads (and bridges) are actually being turned back to local landowners because they have become, in essence, private driveways. The population density for which roads were designed has changed, and now farmers and taxpayers are faced with the question of which roads are absolutely needed and how much we are willing to pay to repair and preserve those roads.

In the old days, a wheat farmer could carry 140 bushels in his truck. Now a 10-wheeler can handle 500 bushels and an 18-wheeler can haul up to 800 bushels—and everyone will still be within the limits of the law. But economic conditions in agriculture more often tempt farmers to overload their trucks or travel on roads that are posted for lighter loads—further hurrying the deterioration of the roadway.

The railroads that serve the Northwest are in a similar fix. Just as farmers are using larger trucks to haul grain to elevators, railroads have increased the size of their grain hoppers. Branch lines that were built to carry 40-ton boxcars can't handle the 100-ton cars that have become standard. A similar trend has occurred at the Northwest's ports: some shippers can load 110,000 tons of wheat—the harvest of 80,000 to 90,000 acres in Eastern Washington—in one ship.

There are tremendous efficiencies in the 100-ton hopper; so much so that the railroad must ask itself if there's enough traffic in one area to warrant rebuilding the entire branch line just to handle those cars. Too often, the answer is a brutal one. The state of Washington has abandoned 1,600 miles of track (Eastern Washington has lost 35 percent of its rural railroad system), leaving an active rail network in 1989 of 3,600 miles.

Researchers at Washington State University, the Washington State Department of Transportation, and the Idaho State Department of Transportation recently collaborated to produce the *Palouse Empire Regional Rail Study*, and determined that most of the remaining branch lines owned by the state's major carriers in southeastern and central Washington (Burlington Northern and Union Pacific) are at risk. In particular, the report estimated that railroad lines in

southeastern Washington could lose as much as $3 million per year if they continue in operation. The major problem is the low revenue generated by the branch lines and the high operating costs of the railroad. When these rural lines are lost, the volume of traffic on rural roads and highways increases, shortening their life span and increasing maintenance costs for state and local governments. Most of these roads were not designed for this new higher weight traffic.

One of the best solutions so far has been the formation of short line or regional railroads, which are operated by private concerns, port authorities, or cooperatives. Since 1980 about 185 short lines have been created in the United States, and two of these are in Washington.

Short lines, such as the Washington Central Railroad and the Camas Prairie Railroad, have the potential to be very profitable. The Washington Central, which runs between the Tri-Cities and Cle Elum, is privately owned by entrepreneur Nick Temple, who bought the line from Burlington Northern in 1986 and is now an ardent advocate of short line railroads. The regional rail line serves almost 200 shippers and primarily hauls fruit. The Camas Prairie Railroad, which is jointly owned by Burlington Northern and Union Pacific, but operated independently, hauls lumber, grain, and legumes between northern Idaho and Pasco. Nearly 300 shippers depend on the Camas as an alternative to truck transport.

Regional or short line railroads often can operate more economically than large railroads because they have different work rules, lower wages, greater operational flexibility, decentralized decision-making, better employee motivation and work incentives, and greater worker morale and satisfaction. Regional railroads may pay less than half the hourly rate of the major operators, can often run trains with smaller crews, and pay lower maintenance costs.

Shrinking Railroads

The rural system will, in all probability, continue to shrink, regardless of ownership. By abandoning some segments of the rail line, the most essential parts of it can be preserved, and the benefits of that preservation serve more than just the local producers. The big long-distance carriers will still be able to ship the grain and other commodities that are collected along the short line railroads. And the continued availability of some form of rail service will help reduce freight rates for producers because there will still be competition between truckers and barge operators, and the railroads.

Ironically, the competition that exists between the truck-barge system and the railroads may be indirectly responsible for the decline of both railroads and rural roads. Cheap truck-barge rates can drive rail rates so low that the railroads can't afford to maintain their rural tracks. When Burlington Northern abandoned a spur line from Rosalia to Spring Valley, Washington, the increased truck traffic caused $5 million in damage to roads in Lincoln County and $6 million in Spokane County.

We now know that we can determine how this damage occurs, predict its severity, and use the information to prevent further rail line abandonment and assist state highway departments that must anticipate which roadways will need repairs or reconstruction. The amount of road damage is greatly affected by the weight of the vehicle—as the weight increases, the damage to the pavement is significantly and quickly amplified. One 18-wheeler, loaded to a legal 80,000 pounds, has the same impact on the highway as 4,000 Toyotas. And much of the resource industry traffic on rural roadways consists of 18-wheel trucks, loaded to the limit (or higher), and generates much of the highway damage in the Pacific Northwest.

The Impact of Abandonment

In 1989 Jerry Lenzi, the director of research for the Washington State Department of Transportation, and I developed a methodology to identify the impact of rail line abandonment on roads. By using this method, we can outline the effects of abandonment, such as the Union Pacific's decision to close down lines in the Tekoa area in Eastern Washington, before those routes are truly abandoned.

The five-step procedure begins with the identification of the lines that are targeted for abandonment. Low-density rail lines are prime candidates for the railroad's consideration. Second, we gather specific information on area shippers and the commodities they move, and compile data on the revenues that the railroads generate from current traffic patterns. We then perform a shipper's survey to obtain specific information on the amount of truck traffic that would be needed to replace train service in the event of abandonment. We also ask where those trucks would be headed, what vehicle configurations would be necessary, and time of the year the traffic would be moving. Using this information, we can estimate the amount of damage to county roads and state highways (according to guidelines established by the Pavement Management System of the Washington State Department of Transportation). Finally, we determine the cost that rail line abandonment would have on county roads in the affected area.

One of our case studies was a 61-mile section of Burlington Northern track from Waterville to Mansfield in central Washington (see map). The roads that were affected by the abandonment of the Mansfield line (shown by the dotted rule) included segments of highway routes 2, 172, and 17. Most of the grain that could no longer be moved by rail was transported by trucks with gross vehicle weights of 80,000 pounds (generally 48-foot trailers with an 18-foot pup trailer). The traffic increases were most noticeable on U.S. Route 2 from the junction of SR-17 to Coulee City. This short two-mile stretch of road, which carried traffic from Waterville, Withrow, Farmer, and Sims Corner, received an extra 8,750 truck passes per year as a result of the rail line abandonment. The roadway from Mansfield through Sims Corner to U.S. Highway 2 was traveled by an additional 2,970 trucks, and the route from Withrow to Farmer on highway 172 received 1,820 extra passes.

After the first four case studies, we revised our methodology to incorporate appropriate changes in the procedure. We found, for example, that when we evaluated the traffic that present-day shippers needed to move and how it would be moved, it was important, too, to examine the requirements of both past shippers and potential shippers. In the case studies, we talked with some elevator managers who had been moving their products on the railroad in earlier days and could, with some minor adjustment, return to railroad transportation in the future. In like fashion, firms that were new to the area, but weren't yet shipping their products via the railroad, were as useful and important in the analysis as present shippers. We also discovered that, when preparing our damage estimates of rural roadways, we could corroborate our predictions by having district maintenance personnel develop parallel estimates.

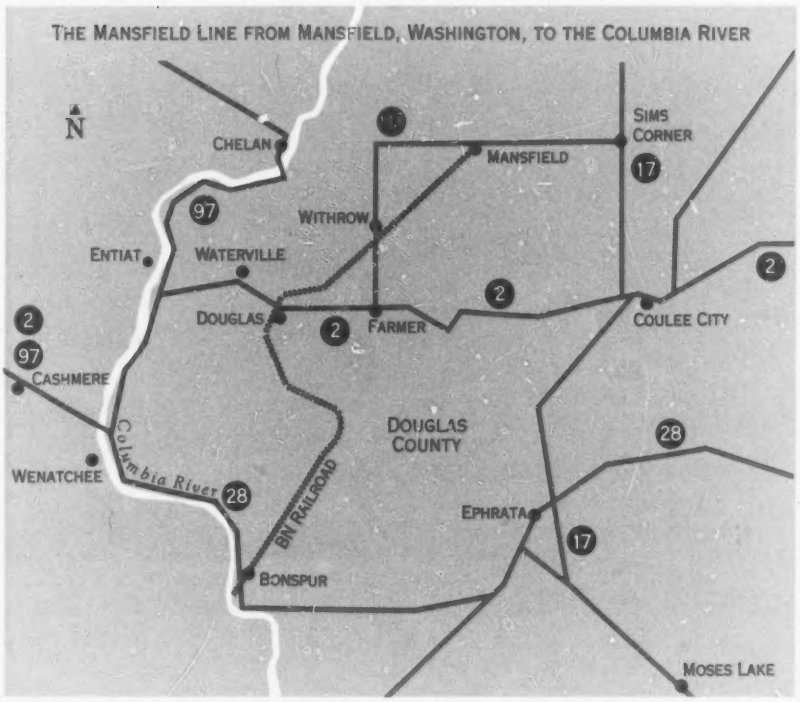
Private Decisions, Public Costs

It would be short-sighted to assume that the only impact of rail line abandonment is on roads. As railroads make their private, business-oriented decisions to maintain or abandon a rail line, significant public costs are incurred. Washington's residents pay for the damage to rural roads, and these taxpayer expenditures must be incorporated into rural transportation decision-making. In a 1989 staff report for the Rail Development Commission, Richard Taylor, a researcher with Wilbur Smith Associates, and I examined the relationship between railroad revenues, operating costs, transportation costs, and road damage expenses to see what the total revenue and cost picture to the public would be.

We chose six rail line segments in Whitman County. The total railroad revenue figures for the six segments, after operating costs were deducted, revealed that the rail lines operated at a loss of $1.98 million a year (only one segment had a positive cash flow). When operating costs and return on investment were subtracted from the revenue figures, all six lines showed a negative balance. When rehabilitation costs for each of the line segments were included, the total annual loss amounted to $6.52 million.

If those six rail lines were abandoned, area shippers would be forced to bear the increased transportation costs that would arise when they transshiped agricultural products to the river for barge movement. For Whitman County shippers, almost $1.47 million would be spent annually in additional transportation costs as a result of the abandonments. The resulting road damage would incur $1.16 million in annual costs, expenses that would be borne by the county. In all, the total cost of transportation and road damage increases would come to $2.63 million a year.

If we look at the big picture of private and public costs, what quickly becomes evident is that when societal costs are added to the railroad's revenues, minus operating costs, many of the six lines show a positive cash flow. Perhaps it would be in the best interests of counties and shippers to negotiate a subsidy/rate increase/volume guarantee so that these rail lines are not abandoned. Such guarantees might increase the railroad's interest in maintaining the service and win the approval of the public, which would otherwise have to assume the costs we've identified in this analysis.



The Importance of Competition

How should we—as wheat farmers Washington's taxpayers, and the residents of rural communities—face the problem of our transportation woes? First, we can learn by studying the current activity in Whitman County and neighboring Latah (Idaho) County, where government and private organizations are fighting Union Pacific's proposal to abandon several branch lines. But their efforts don't center only on existing short routes; they're trying to establish a core rail system for the entire region. The city governments and Chambers of Commerce of Pullman and Moscow, both county commissions, the Port of Whitman County, and shipper groups are working together through the auspices of the Palouse Rail Preservation Steering Committee. These people are talking to the railroads and to others in an attempt to establish a short line railroad that can take over the area's branch lines.

Second, farmers must support these grassroots efforts to retain the railroads, even if it means paying slightly higher shipping costs and, perhaps, diverting some county road money to support rail transportation. This isn't easy advice to swallow, but these tactics may be the only way to preserve the present competitive transportation system. We can't forget that a balanced transportation system keeps competitive rates down. If railroad lines are abandoned, farmers could become captive to the truck-barge system, and there's little competition to be found when one barge operator controls 80 percent to 90 percent of the grain capacity on the river.

Growers may not think that they can afford to pay more than they're currently paying for the maintenance of rural roads or for the operation of a short line rail system, but if all rail service is lost, they could wind up paying a lot more. Growers who are still complaining about "those damn railroads" need to look dispassionately at what makes economic sense. If supporting a short line railroad by paying slightly higher freight rates now will allow them to save more in the future, then, selfishly, farmers should help their railroads. If $10 to their regional railroad saves $8 in road damage, $5 in increased transshipment costs, and $15 in competitive rates, then it is $10 well spent.

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